

# amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



VOL. 47, No. 6

JUNE 1979

## FEATURED IN THIS ISSUE:

- ★ RTTY IS FUN
- ★ DETERMINING ANTENNA SURFACE AREA
- ★ SCANNER FOR THE ICOM IC22S
- ★ ARE YOU INSURED?
- ★ JOHN MOYLE MEMORIAL NATIONAL FIELD DAY 1979 RESULTS

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### Cover Photo

The photograph shows Peter Schulz VK7PS, an active radio amateur and keen bushwalker combining both hobbies as he makes a contact via the Mt. Wellington repeater from the summit of Forty Lakes Peak in Tasmania's Great Western Tiers.

Photograph: WINSTON NICKOLS VK7EM



# WIANEWS

## 1979 CONVENTION

As this is being written the day following the close of the 1979 Federal Convention it will be possible to include some details of it.

The Minister for Post and Telecommunications, Mr. A. A. Staley, joined the Convention delegates as a guest for dinner on Sunday, 29th April, along with Mr. Jim Wilkinson, First Assistant Secretary, Radio Frequency Management Division of the Department.

During his speech, introduced in a witty and interesting preamble, the Minister made many references to the Channel 5A situation as may be seen in the Press Release published elsewhere in this issue. Much other information of interest to the amateur service came from his address and from the question and answer forum which followed.

When the Minister observed the reaction to the first mention of the Handbook it was clear to him that the Institute was dissatisfied with the draft presently under preparation for printing. He ordered it stopped, if this could be done at this late stage, to enable further representations to be made by the WIA. The virtues of self-regulation appeared to be shared by everyone present, particularly the guests.

Some other questions were answered, including the proposed new Radio Communications Act and the desire of the Institute to be granted some involvement before finalising this legislation, the possibility of a Radio Frequency Advisory Committee for Australia and the great awareness by the Minister and his Department of the continuing valuable contributions towards WARC 79 by the WIA representatives. Questions were asked about the schedule to the latest Amateur Station Licence Form RB94 (June 1978), which specifies the authorised receiving frequency bands — e.g. 7.00 to 7.15, but does not authorise the amateur operator to listen for USA stations on their authorised frequencies between 7.15 and 7.30. A discussion highlighted the impossibility of controlling receivers (general coverage and other) and the act of listening outside the amateur bands, whereas concentration should be given to persons using information obtained from listening (which accords with the spirit of ITU RR 5195(724)).

The long delays experienced in many places between passing an exam and the issue of a licence came in for criticism. "Over the counter" licensing in Victoria was instance as an example of the measures which could be taken.

Two final questions before concluding this short report. Reduced licence fees for pensioners — promised in a letter of 19th

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October, 1976 — appears to have become nullified by re-investigation and an early reply is not now to be expected. A discussion about interference by, and to, Channel 5A TV, brought out recognition that the receiver is very largely the culprit, defined TV station broadcast service areas are proposed to overcome the problems of interference in "marginal" reception areas and that the "ethnic" television service will definitely go to UHF.

It was indeed most heartening to be made aware of the Minister's considerable knowledge about WARC 79 preparations and it was obvious to delegates that he had either been briefed in great detail or had been kept fully informed about them.

The Convention dealt with 34 Agenda Items, 10 general business items, 2 special resolutions, several routine items and 18 annual reports, in addition to detailed explanations relating to WARC 79. The work was facilitated by the appointment of 5 working groups. The Convention went into Committee for debate on other matters.

Perhaps of interest to members' pockets, the Finance Sub-Committee presented a budget for 1980 which was adopted subject to review, as usual, by 31st August. In it no increases in Federal dues were proposed provided the rate of increase in new members is maintained. A study of the latest 1979 figures revealed the possibility of a small deficit in funds available for WARC 79 after a decision had been made that Mr. Michael Owen VK3KI be an additional amateur delegate for the Australian team. This step was considered essential based on latest advices and strong recommendations from experts in ITU General Conference proceedings. It was the unanimous agreement that no stone be left unturned to ensure the fullest possible involvement of the amateur radio service in this vital Conference. Note was also taken of the absolute necessity of continuing amateur involvement during the years succeeding the Conference.

The appointment of Executive members for the ensuing year resulted in only two changes — Mr. Courtney Scott VK3BNG comes on as Federal Chairman, and Mr. Harold Hepburn VK3AQF replaces Mr. Graeme Scott, who resigned through pressures of business, although he hopes to continue his work in the Federal sphere as Federal Education Co-ordinator to provide continuity.

The delegates were very pleased to welcome Mr. Jack Hum G5UM as a guest for a short time during the Convention. Most old-timers will know Jack's involvement with the RSGB over many years and his expert knowledge in the VHF/UHF/microwave regions of the spectrum affecting ITU Region 1 and the UK in particular. Never were so many Divisional Presidents and past Presidents represented as at this Convention, including visits by Mr. Eric Bugger VK3ZZN, the VK3 President; Six out of the seven Divisions were so represented. Others attending the Convention included Michael Owen VK3KI, Bruce Bathols VK3UV, Bob Arnold VK3ZBB (Satellites and Project Ascert), Al Chandler VK3LC (foreshadowing retirement as Intruder Watch Co-ordinator by the end of the year) and Ron Henderson VK1RH in his dual role of VK1 Federal Councillor and Federal WICEN Co-ordinator. VK3SP kindly found time to attend and provide most valuable advice in the international sphere. Amongst other votes of thanks, mention must also be made of (a) the impending retirement from active participation in Institute affairs of Ray Jones VK3RJ, after 50 years service in the QSL field, and (b) Keith Roget VK3YQ/YJB,

the former Federal Treasurer, for his work on the financial side of affairs.

Two new Annual Reports taken at this Convention were those from the Federal Videotape Co-ordinator, John Ingham VK5KG, and the Federal RTTY Co-ordinator's report done by Peter Mulligan, VK2A8H.

In this news report it is impractical to review all the Agenda Items but a few have been selected as being of probable general interest. Proposals to admit Australia-wide special groups (e.g. Old-Timers) for affiliation were referred back to the Executive for further review and report. An item dealing with proportional voting lapsed for want of a seconder. A position on 10 metre band beacons was adopted with a reminder to Novices to leave the beacon frequencies clear as far as possible (28.2-28.3 MHz segment). Channel numbering in the FM portion of the 2 metre band shall be in a 4 digit number based on frequency — repeaters identified by output channel number — VK4 were opposed to this and abstained on the similar system for 70 cm. A band plan for the FM portion of the 2m band (146-148 MHz) was adopted.

A working group spent much time debating the future of AR and the related subject of the Executive office. It was decided that a second full time employee should be employed primarily for AR duties. A motion that Federal Convention Minutes be made available to all affiliated clubs was withdrawn when the debate determined the fact that this was essentially a Divisional responsibility. A proposal for an International amateur licence/certificate along the lines of the international driver's licence was passed. Almost an annual motion seeking higher Morse speed examinations for reciprocal licensing problems was again passed.

Motions to request more frequent Morse and other exams were again passed, in addition to exams outside normal working hours. Work is to begin on seeking the issue without fees of the suffixes WIA to WIZ on a national basis for special purposes, and that WICEN exercises should be authorised by the appropriate Statutory Authorities instead of the Department as in the past. A motion to press for By-law imports of transceivers and equipment for use on frequency bands above 2m was passed but importers of such equipment are to be encouraged as a first step to take the initiative themselves.

It was resolved that the most effective use for the \$3500 received for education purposes was the instigation of the production of a set of educational/promotional videotape masters. It was also decided that such monies should be put into an Education Resources Development Fund/Provision. The Executive were authorised to examine the desirability of printing an annual call book. Various modern production methods for the call book were studied in addition to a short debate about the contents.

Arising out of Annual Reports it was noted that the Federal Contest Manager proposes to seek, through the pages of AR, membership opinions on various contests and rules.

Under the heading of general business items several were withdrawn, some for one reason, some for another. Passed was one requiring Executive to establish criteria for Convention Agenda Items; there was also a reminder to submit them much earlier each year so that they can be printed in AR for members' comments beforehand.

A more detailed report will be prepared for the next issue of AR.

to 100 feet long wires connecting the equipment to the nail in the trunk.

The use of an effective earth was not overlooked by the Major, something that today's successful users of vertical antennae also take into account.

(Copies of the E.E. supplied by Ivan, VK5QV.)

## QSP

### NOTHING NEW?

Aerials have always been a topic of great interest among the radio community. The "Electrical Experimenters" of June 1919 reported that Major Squier, US Signal Corps, had discovered that live trees could be used as aerials. Communications between trees was carried out over a distance of three miles. (The US Army again investigated this generally available and well camouflaged antenna during the Vietnam war.) The editor of "Electrical Experimenters" suggested that the Major had discovered the answer to the anxious amateur troubled by objections from parents and landlords about unsightly aerials. The editor also suggested

connecting up every tree in a small wood to give a "wonderfully effective antenna."

In the June issue of the same journal the Major wrote an article describing his experiments. The eucalyptus trees (transported to California from Australia many years earlier) were found to work better than other trees. A wire was connected to a nail driven into the trunk of a living tree well up in the foliage. An earth consisting of several pieces of insulated wire was buried in a radial manner around the tree. Signals from as far afield as Europe were easily received. No mention of the wavelength is made, however, it seems likely that wavelengths of 1,000 to 10,000 metres would have been used. At the very least the trees would have provided some top capacitance for the 50

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Ian Hunt VK5QX  
8 Dexter Ave., Salisbury E., 5109

I built a VDU. Yes! I copied it from an American magazine. What a remarkable piece of electronic wizardry. It had two pages of memory, automatic carriage return/line feed, cursor control, screen read capability, 32 characters per line, erase functions, all sorts of beaut features. Modifications were thought up to provide scroll-up facilities, character counting, four pages of memory and many other additional ideas. There was still one thing wrong. As it used ASCII code I couldn't put the thing directly on the air. Oh well, why not build a new terminal unit with all the things needed?

So, to make up some more printed circuits. Two DT600 demodulators solid-state switching board, selective amplifiers and switching for the CRO monitor, DD550 Magnet Driver (to use for hard copy, two AFSK generators, two UT4 UART/FIFO systems (one for Baudot, the other for ASCII code), Baudot to ASCII Converter (using a National MM5220 BL ROM Code Converter), ASCII to Baudot Converter (from the same magazine articles), UART Parallel/Serial Converter and vice versa, Automatic CW Identifier, two dual XER Crystal Clocks plus power supply. WOW! What a lot of work.

Art work to do, circuits to try out, capacitors and resistors to bridge for accurate values, negatives to be made, more research on circuits, boards to be etched, card frame made up with card guides and sockets, cabinet, panel work, lettering, more metal bashing, bits and pieces all over the place.

Time seems to run short. The project is put aside due to other pressures, complication of circuitry, need to re-think some of the approaches, other activities, WIA work, etc.

Well, I may get around to finishing this most comprehensive project some time in the future. It still looks to be a good system. There will be hundreds of inter-connections to be made between boards. More modifications will be in order as new ideas, components and methods present themselves. Lovely ways of storing information, producing pre-programmed messages, inserting corrections, all these possibilities exist.

I promised myself I would not take short cuts and put the VDU on the air without first finishing my all-singing-all-dancing new terminal unit.

So what happened? The ambitious project is still not completed. BUT! I am now



View showing at top homebrew RTTY terminal unit and monitor CRO. Below Model 19 teletype and tape Tx, loop current control and switching box, VDU and keyboard.

on the air with noiseless RTTY. And it took little more than a week of work in my spare time. How? You may well ask.

I would like to tell you about my new VDU system. It is called the "XITEX SCT100 Single Board Video Terminal". (Ref. 1.) This unit, which is advertised in Amateur Radio has allowed me to get going on noiseless RTTY very cheaply, quickly and easily. For the benefit of you who may wish to do likewise, following is a description of the unit together with some comment on my own personal experiences in getting same going. The XITEX is a complete video terminal mounted on one printed circuit board approximately 5 to 10 inches in size. Mounted on the board are a total of 32 integrated circuits, including a character generator and a micro-processor chip. The board can be obtained with all components mounted in place and tested as a unit, however it is not very difficult to solder in the components yourself, and I find it more fun to do so, and of course cheaper as well. Together with the board comes a handbook which provides full instructions on assembly, testing and operation of the unit. Having assembled the board next comes the matter of the power supply. A wide range of options are available in this area and the circuitry provided allows

the use of any of the following forms of supply:—

- (a) 7-11V DC at 0.75A (max.) unregulated.
- (b) 8-12V AC RMS at 0.75A (max.).
- (c) 5V DC plus or minus 5 per cent at 0.75A (max.) regulated.

Having prepared the system thus far it is necessary to make a certain number of inter-connections. These are power supply, keyboard and video display. The power supply connections are made to a 2-pin connector, supplied, in the case of AC supply or via 2 pins of a 30-pin edge-connector in the case of DC supply. If one is already using what is known as an S100 bus system for computer type equipment the board may be simply plugged into the S100 bus. The keyboard connections are made via the 30-pin edge-connector or a separate 16-pin DIP socket. Now for a word about the keyboard. It is necessary that the keyboard be of a type which provides the standard ASCII code output. There are many different sources for such keyboards advertised in magazines including disposal sources. The suppliers of the SCT100 can of course also provide a suitable keyboard at reasonable cost with the unit. (Ref. 2.) The keyboard I use may, however, be of interest to you. When I first obtained same it was of a type providing a computer code called EBCDIC at

the output terminals and used on its board a custom programmed Read Only Memory which had 11 address lines. Some thought on modification produced the solution of reducing the 11 lines of the keyboard matrix to seven lines by using diodes. The seven address lines were then taken to an Ultraviolet Erasable PROM into which I had programmed the necessary information to provide ASCII out for each of the unique codes selected at the input at the press of each key. Selection of Upper/Lower case was implemented using a simple TTL circuit in the form of a latch providing a logic "zero" output for lower case, a logic "one" for upper case when the shift key is held down, locking to a constant "one" when the lock key is pressed and re-setting to a logic "zero" when the reset key is pressed. The output of this circuit is fed to the eighth address line of the EPROM. The use of the EPROM in a socket proves to be most convenient as the data out of the keyboard can be completely changed for special purposes by the simple expedient of plugging in another EPROM containing the requisite programming. This feature and the changes described would not be used by most operators who would simply as stated connect an ASCII keyboard to the VDU board and go from there, so don't become concerned about a seeming complication. This portion of the description was simply included to indicate a method and solution which may be of help to others who may wish to experiment with other keyboards themselves. Incidentally, the power supply from the SCT100 board may be used to supply positive 5 volts to the keyboard you are using.

Connection to the video display may take a number of different forms depending upon the unit you are using and is fairly well covered in the SCT100 handbook. The most popular form of display seems to be a small black and white portable television set. It is usually a simple matter to locate the input of the video amplifier within the set making the connection through an external jack and switch added to the set to allow its use as either a normal TV set or video monitor. In my case it was necessary to invert the video from the SCT100 to suit the TV set. This was simply accomplished by using the inverting input of an operational amplifier together with some DC adjustment to obtain correct levels. This circuitry was built on a small piece of matrix board and mounted inside the back of the television set and supplied with power from a suitable point within the set. The video from the SCT100 is taken from one pin of the 30-pin edge-connector and earth via a piece of light coaxial cable.

Having achieved this stage of progress it is only necessary to switch on, and if the wiring has been done correctly the whole system can be checked out. Now to describe for you just what it can do.

This system will provide at a flick of a switch the following facilities:-

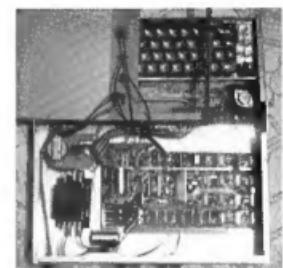
1. ASCII type output for micro-processor applications and other computer orientated systems with both upper and lower case alpha characters, full punctuation, standard symbols and numbers plus 31 special characters intended mainly for mathematical work.

2. A standard set of Baudot characters exactly the same as you would find on any ordinary teletype machine.

Either of these two conditions are selected by means of a single pole two position toggle switch wired to the appropriate pins on the edge connector. In the ASCII mode a baud speed of either 110 or 300 bauds may be selected, again by a toggle switch wired in a similar manner, and in the Baudot mode the standard teletype speeds of either 45.45 (International Amateur Standard) or 7.42 bauds may be selected. It is also possible by using a slightly non-standard powering up and resetting procedure to obtain Baudot code at 110 bauds. Other baud speeds can be obtained by the addition of an external clock in lieu of the Xtal clock provided on the keyboard. To take the simple view, however, it is merely a matter of taking the output and input connections from the PC board to your usual teletype terminal unit to be on the air with solid state and noiseless RTTY having selected Baudot code and appropriate speed on the SCT100. It is beyond the scope of this article to describe fully the functions of the SCT100 when used in the ASCII mode, however details of a few of the other features of the unit, when used in Baudot mode, may be of interest. The unit provides 64 characters per line across the screen with a total capacity of 16 lines per frame. The first line appears at the top of the screen, as would be expected, with each consecutive line being written below the previous line until such time as the screen is filled up.

At this point the unit adopts a "scroll-up" mode with all the lines moving up one line at a time as the end of the bottom line appears. This means that the top line then disappears off the screen but gives plenty of time to read any text being received.

The unit includes provision for operation from 50 Hz supply but requires a printed track to be broken and a short jumper wire to be added on the board for 50 Hz operation. This option is quite clearly detailed in the instructions and shown on the board and circuit. Normal operation is with white characters on a black background but provision is made for reverse video, i.e., white on black, to be selected. Automatic carriage return and line feed is featured when using either transmit or receive, however a unique function appears under this circumstance. Should the unit come to the end of a line and a manual CR/LF not be received, it carries out the automatic CR/LF function but automatically places an arrow at the beginning of the next line to indicate that this line is a continuation



Complete VDU, with keyboard in enclosure. Cover partly removed.

of the previous line. This feature is of immense value when communicating with other operators using the mechanical type machines which generally have a line length in excess of 70 characters.

When baudot operation is selected, only characters normally appearing on a baudot teletype machine can be transmitted. Operation of any other character on the ASCII keyboard will result in nothing at all happening. To those not quite sure as to the meaning of this statement, I might explain that the standard ASCII keyboard carries many more characters and functions than an ordinary teletype keyboard. On an ASCII keyboard figures do however appear as lower case characters whilst on a teletype machine there are special keys to select either figures or letters as the case may be, much the same as a shift key on a typewriter is used for upper and lower case. When using the XITEX unit the micro-processor on the board takes all the work out of this area of operation. If you are typing letters and then you press a key for a figure this fact is recognised by the circuitry which automatically inserts a "figures" shift character and transmits it before sending out the figure signal for the key you have just pressed. Likewise, if you have been sending figures and then revert to a letters key it automatically inserts a "letters" shift before sending the letters character. Very clever stuff indeed, and no knowledge or expertise required of the operator. You simply sit there and press the keys for the letters and figures you wish to send and the rest is all done for you.

Input and output points on the unit also appear on the 30-pin edge connector. Provision is made for various types of input and output levels. Opto-couplers on the board allow you to make your connections directly across the inputs and outputs of a standard machine type teletype loop at high level voltages in either a simplex or duplex mode of operation. The provision of alternative computer type RS232 input/output level points allow simple connection to associated solid state equipment. However, in making your

interfaces with your teletype terminal unit do not make the mistakes which I made through some carelessness and sheer lack of thought. Emitter followers DO NOT pull right down to earth level (logic 0) and one must also remember to check that the sense of signals (i.e., either positive or negative for a mark signal in the teletype terminal unit) is correct, when making interconnections. Simple commonsense can save you a lot of time and effort. Had I followed the correct course I should have had everything working over the period of just a week-end.

So, to re-cap, if you wish to get on the air with silent modern RTTY with a solid state VDU system try the following, even if you are just starting from scratch. Obtain a XITEX SCT100 unit and a suitable ASCII keyboard. Connect it to a power supply as described and a small cheap portable black and white TV set. Connect the output of your RTTY terminal unit either via your selector magnet loop or TTL level output to the SCT100 input. Connect the output of the SCT100 to your AFSK or FSK keyer unit to drive your transmitter. Select Baudot at 45.45 bauds on the SCT100 and go on the air. It's as easy as that.

I have gone to the trouble of writing up this unit as I have for some years spent time drooling over the advertisements in both local and overseas magazines, knowing at the same time that the solid state RTTY gear advertised was so expensive as to be outside the range of my pocket-book. Having discovered the ease, and I emphasise the relatively low cost of the unit I am now using, I thought it only right to let you know that such an item exists and is available in Australia.

Comments I have heard also led me to believe that many people did not understand just what this little unit would do. It is not my intention to provide free advertising for a commercial item, neither to condemn the manufacturers of what may well be other very good equipment also available.

Before I conclude, I would like on the same basis to make known to you a few other matters which may help you in the field of RTTY. Within Australia a group has been established based on the WIA VK2 Division. This Group is known as the Australian National Amateur Radio Teleprinter Society and can be contacted through using the address of the VK2 Divisional HQ at PO Box 123, St. Leonards, NSW 2065. The Society publishes a bimonthly newsletter called "AREWISE", which is posted to members all over Australia. Cost of membership is only two dollars per year and receipt of "Arewise" will help you in learning more about RTTY operation. The Society can also supply kits such as the well known ST8 RTTY Demodulator at an exceedingly low cost (approx. \$40.00) compared to commercial units, and can also help with spare parts for teletype machines, provide assistance

with RTTY projects and generally help you to get going on this mode.

Another excellent magazine which does not cost too much to subscribe to is the American based "RTTY Journal", of which there is 10 issues per year. This magazine is available for only nine dollars (Aust) per year as a service (he makes nothing from it) through Norm Wilson VK4NP, who is listed in the Call Book. The RTTY Journal also puts out an excellent Beginners' Handbook which would be of great assistance to anyone just getting started on this mode. The Beginners' Handbook is not, however, available through Norm VK4NP and you would have to obtain same direct from the publisher. (Ref. 3.) I have found that many other excellent articles abound in general amateur radio magazines and literature, particularly the magazine "Ham Radio", so go looking through whatever back issues you can locate. Amateur Radio Teletype is not at all as difficult as it may first appear, so don't be frightened off by thinking it may be too complicated for you.

Also in existence for some time has been the Australian Amateur Radio Teleprinter Group based in Western Australia. This Group puts out a newsletter also and may be contacted through VK6IF, 32 Mayflower Crescent, Craigie 6025. Subscription to the AARTG is four dollars per year, including the AARTG quarterly newsletter. The Group has also in the past put out a kit for the ST8 Demodulator, which is a more simple version of the ST6. I have been advised that Cliff VK6NK is the person to contact regarding this kit. I trust that this article will have been of some interest and help to you in becoming a little more familiar with some aspects of a most interesting mode of operation and one in which a growing interest has lately been evident in this country. So if you have a yen to take part in amateur RTTY operation give it a try. I find that all of the chaps on this mode are always very willing to help any newcomer on their way, so don't be afraid to ask.

#### REFERENCES

1 and 2. Available from the Micro Shop, Box 207, Gawler, South Australia 5118. Cost of keyboard kit \$70, but can be obtained assembled and tested at an extra charge. Cost of SCT100 VDU board kit \$160. Both prices include tax.

3. RTTY Journal, publisher Dee Crompton, PO Box RY, Cardiff by the Sea, California 92007. Cost of RTTY Beginners' Handbook \$4.50 US.

DT600 RTTY Demodulator is an updated version of the old reliable ST8 and was originally described in Ham Radio Magazine February 1976, page 8. The DT500 is a simplified version of the DT600 designed with the VHF operator in mind, and described in Ham Radio, March 1976, page 24.

The DD350 is a dual magnet drive for teletype machines and includes timing circuits to operate auto-start on the machines and also to automatically shut down and start up the magnet loop as necessary.

The following items can be obtained from Data Technology Associates Inc., PO Box 431912, Miami, Florida 33143-1

DT600 RTTY Demodulator PC Board, \$12.50 US; DT500 RTTY Demodulator PC Board, \$10.50 US; DD350 SMD/Motor Control Board, \$7.50 US; DT70

Loop-Logic-Polar Interface Board, \$7.50 US; 4 Potentiometer Set for DT600/500, \$2.00 US.

Each of these boards are of high quality and are fibreglass. The Demodulator boards are through-hole plated. I have seen these boards as supplied to a local amateur and was most impressed with them. With each board came a most comprehensive handbook with detailed construction and testing information, and even included two parts lists, one in order of component number and the other in order of component value. Instruction on how to solder is even included.

These references together with the information contained in the above article should provide anyone starting off on RTTY with sufficient information as to where to obtain parts, components, etc., and provide a guide as to the costs likely to be incurred with such a project.

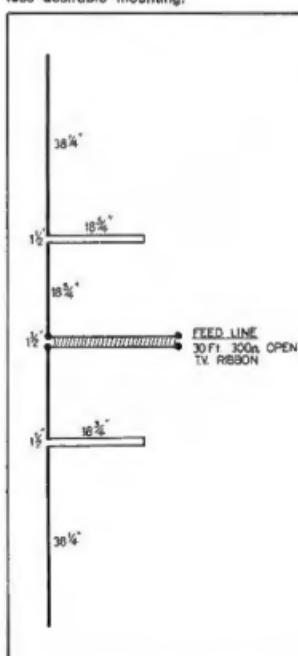
## TRY THIS

WITH THE TECHNICAL EDITORS

#### A TWO METRE COLLINEAR

Earlier (1963) ARRL handbooks carried a description of a 2 metre collinear. Les VK2AZX has submitted details of a similar antenna.

A 4:1 balun enables a coaxial feedline to be used. The ARRL suggests the use of stiff 1/8" aluminium wire for the elements, supported on ceramic standoff insulators screwed to a wooden pole. TV screw-eye insulators make a cheaper but less desirable mounting.



# TWO METRE TRANSMITTER FILTER FOR OSCAR MODE 'J'

Joe Reisert W1JR

17 Mansfield Drive Chelmsford MA 01824

Many OSCAR 8 Mode J users have been experiencing receiving difficulties due to a large number of birdies appearing on the 534.1-435.2 MHz downlink when they are transmitting between 145.9 and 146 MHz on the uplink. This is most often due to overloading and intermodulation in the 70 cm converter due to the proximity of the third harmonic of the uplink transmitter (viz., 437.7-438 MHz).

There is very little that can be done to the receiving converter without using elaborate filters and high dynamic-range circuitry. However, most of the birdies can be eliminated by properly filtering the output of the two-metre transmitter to minimize any third harmonic output.

In my case, I could detect about a dozen such birdies varying from just above the noise to 20-30 dB over the noise. Operation on the 435.1-435.2 MHz downlink was almost impossible. Then I added a simple (see Fig. 1) 5 element half-wavelength type of low-pass filter on the two-metre transmitter (a homebrew transistor amplifier operating class B with 40 watts maximum output). There was an immediate improvement with only two weak and three moderate (10-15 dB over the noise) birdies. Needless to say, the results were dramatic.

The filter used is not an ordinary low-pass type. It exhibits the characteristics of a 1 to 2 dB ripple Chebyshev design over the 135-150 MHz band. The cut-off frequency is typically 250-275 MHz, and attenuation is greater than 10 dB on the second harmonic (292 MHz) and greater than 50 dB at 438 MHz. Therefore, this design is only recommended for two-metre use.

## CONSTRUCTION

For optimum performance, the filter should be built into a shielded box as shown in Fig. 2. Double-sided printed circuit board is recommended as a suitable ground plane and also makes soldering to C1 and C3 easier. Note that solder should flow on both edges of C1 and C3 for lowest loss and VSWR. Also provide a good ground strap between J1 and J2 to the top side of the printed circuit board

as shown. This will further reduce harmonic output.

## OPERATION

Tune-up is simple since the filter has a broad bandpass. First set C2 to minimum capacitance and place the filter between the transmitter output and a power output or VSWR meter. With the transmitter tuned to 146.0 MHz, increase the capacitance of C2 until power output is maximum. Caution: do not exceed 50 watts output (more than enough for OSCAR 8 Mode J operation) since the components are not rated for higher power loads. Retuning for 144 MHz operation should not be necessary as the filter bandwidth is quite broad.

If you are fortunate enough to have access to a spectrum analyser, you can tune C2 for minimum output at 438 MHz. This, however, may cause additional loss at 146 MHz. If so, the transmitter output circuit may be readjusted to compensate for the mismatch.

## PERFORMANCE

The 435.1 to 435.2 MHz spectrum will be much cleaner when using the described filter on your two-metre transmitter. Always use the least possible transmitter power, since this will also lower the third harmonic level. Additional separation between the two-metre and 70 cm antenna should also help.

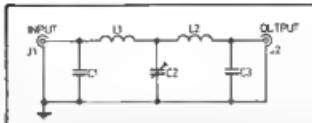


FIG. 1. 148 MHZ LOW PASS FILTER  
Insertion loss at 144-148 MHz: Negligible.  
Maximum input power: 50 watts.

Attenuation at 432-438 MHz: 50 dB typical.  
Construction and testing: See Fig. 2 and test.

C1, C3 — 22 pF low loss Mica 300 volt min. UNELCO type J101 (Note 1 and text).  
C2 — 10 — 60 pF Mica trimmer with short

C2 — 10-60 pF Mica trimmer with short leads — ARCO/ELMENCO type 404 (See text).  
L1, L2 — 3T No. 14 AWG enamelled copper wire close-wound, 1/4 in. inside diameter (approx. 40 nanohenries).  
J1, J2 — Type BNC, UHF or N coax fittings.

Note 1: 22 pF UNELCO Mica capacitors are available from Webster Radio, 2602 E. Ashlan, Fresno, CA 93728 at \$1.75 each plus tax and shipping. Do not substitute other types of capacitors.

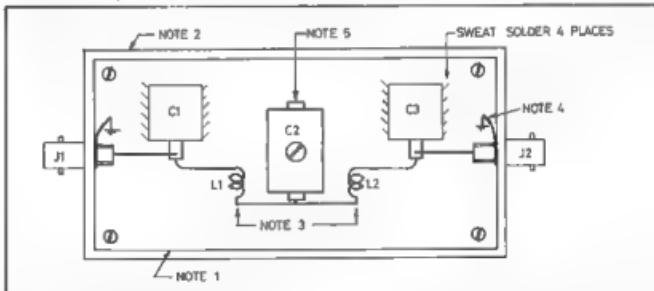


FIG. 2. RECOMMENDED LOW PASS FILTER CONSTRUCTION

## Notes:

1. Use double sided PC board bolted to box.
2. Shielded aluminium box is recommended, approximately 2 1/2 in. x 1 1/4 in. x 1 1/4 in.

3. Keep L1 and L2 separated to cut down on possible mutual coupling.
4. Provide positive ground return such as a strap from connector ground to top side of PC board.
5. Keep leads on C2 as short as possible (see text).

Reproduced from the "AMSAT Newsletter" June 1978.

# DETERMINING ANTENNA SURFACE AREA

Roger Cox WB0DGF  
Hy-Gain Amateur Product Engineer

Some methods of determining antenna surface areas have made many false assumptions. Some of these assumptions are:

1. Air flows with perfectly smooth and streamline motion, or in other words, laminar flow.
2. Since assumption is made of laminar flow, it is also assumed that this flow is in a perfect horizontal plane.
3. Since assumption is made of laminar flow in a perfect horizontal plane, it is assumed that the element portion on the leeward side is shaded out by the area of the boom (see Fig. 1).

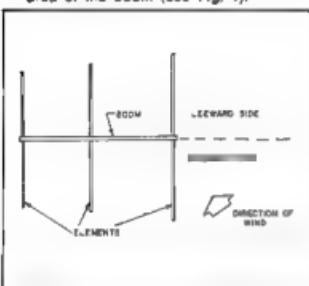


FIGURE 1

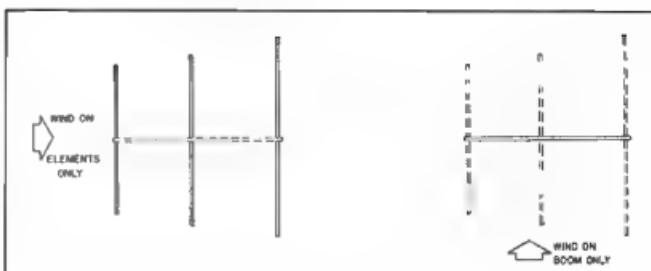


FIGURE 2

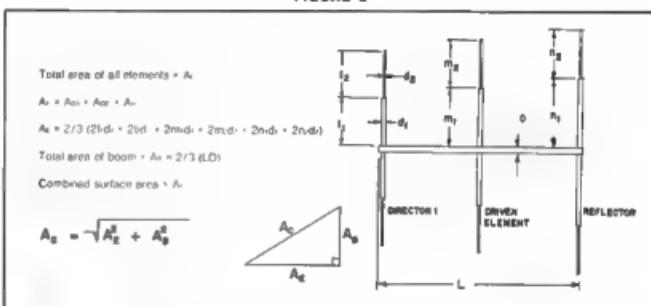


FIGURE 3

In all cases where these antennas would be used outside, you would never have perfectly smooth and streamline motion, but horizontal and vertical fluctuations which when sudden and brief are called gusts. This type of flow would be turbulent rather than laminar. Since there are horizontal and vertical fluctuations, the element portion on the leeward side would not be shaded out. Only if the elements were spaced very close together would you get some shading out.

The Hy-Gain method of calculating antenna surface areas does not use these assumptions. In our method the wind is

projected perpendicularly onto each element (see Fig. 2). The total area of all elements are then multiplied by the 2/3 shape factor for cylindrical elements. The wind is also projected perpendicularly onto the boom. The total area of the exposed boom is then multiplied by the 2/3 shape factor. The resultant total area of the combined elements and boom is obtained by using the Pythagorean Theorem for a right triangle (see Fig. 3). By using this method it takes into account the magnitude of the area from the two directions to give the best angle of wind to give the maximum area.



The popular "Hy Quad"

## ARD

### AMATEUR DIGITAL RADIO OPERATOR

In Canada, rules have been made for a new experimenter class of licence called the Amateur Digital Radio Operator's Certificate. Digital and microwave operators are permitted in Canada on specified VHF and UHF amateur bands and operators of the new class are only permitted above 144 MHz. Holders of existing AR Op Certificates and Advanced AR Radio Op. Cert will be allowed all the operating privileges of the Digital Cert operators except for pulse emissions.—GST December 1978.

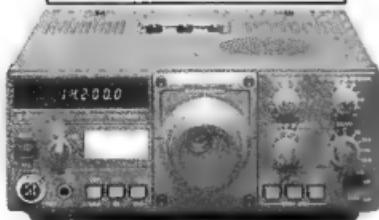
### WALKIE-TALKIES ON 49 MHz

Should be some fun when some of our importers get a signal on the latest craze, walkie-talkies intended for the US market. The new frequencies allocated in the US for low-powered transmitters are around 49.9 MHz. These frequencies have been chosen due to the inappropriateness of operating 100 mW walkie-talkies on Ch. 14 CB (27.125 MHz).

The band already has a radio club in California.

These little flea powered cheapies could provide quite a headache when they are imported and sold locally.

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# A SCANNER FOR THE ICOM IC22S

Gary Smith VK6GS  
2 Urban Street Wag n WA

Icom 22S owners! When you go mobile through the country side, do you miss the news and activity of the area, or miss the openings due to being engaged in driving? If so, this is the ideal scanner for the vehicle.

This article describes how a scanner can be installed in your IC22S. The scanner is easy to build and easy to operate when operating mobile. It has many facilities which, I think, make the extra circuitry warranted.

Only seven ICs, quite a few diodes, a few transistors, two regulators, some capacitors and a little thought makes life easy.

## FACILITIES

This scanner has a variable scan rate, the speed of which can be varied and adjusted for optimum performance. The author's operates at a rate of 15-20 channels per second. It can be operated faster if desired with a possible deterioration of performance.

If the scan-stop is activated by an incoming signal (by the mute cont) you have two choices. You can listen to the incoming signal and during the inter-over pause break in by simply operating the PTT and replying or you may just listen to the conversation. The break-pause or scan delay time can be adjusted by the pot (RV1) in the circuit to satisfy your desire.

The scan also decides the transmit frequency for which it has to reply and by operating the duplex B (Dp B) switch you can reply on the anti-repeater frequency. The scanner scans 20 channels, i.e. 10 Dp channels and 10 anti-repeater frequencies (SpX). The author's scanner covers anti-repeaters 2, 3, 4, 5, 6, 7, 8, 40, 50, 51, plus 600 kHz above all these frequencies, coming out at repeaters 2, 3, 4, 5, 6, 7, 8, 146.6 (i.e. 40 + 600K), 147.1 (50 + 600K) and 147.15 (51 + 600K).

## CIRCUIT DESCRIPTION

The circuit is very basic but is quite effective. It has a scan-stop and delay circuit consisting of TR1, TR2 and IC1a, IC1b and IC1c which work into the clock

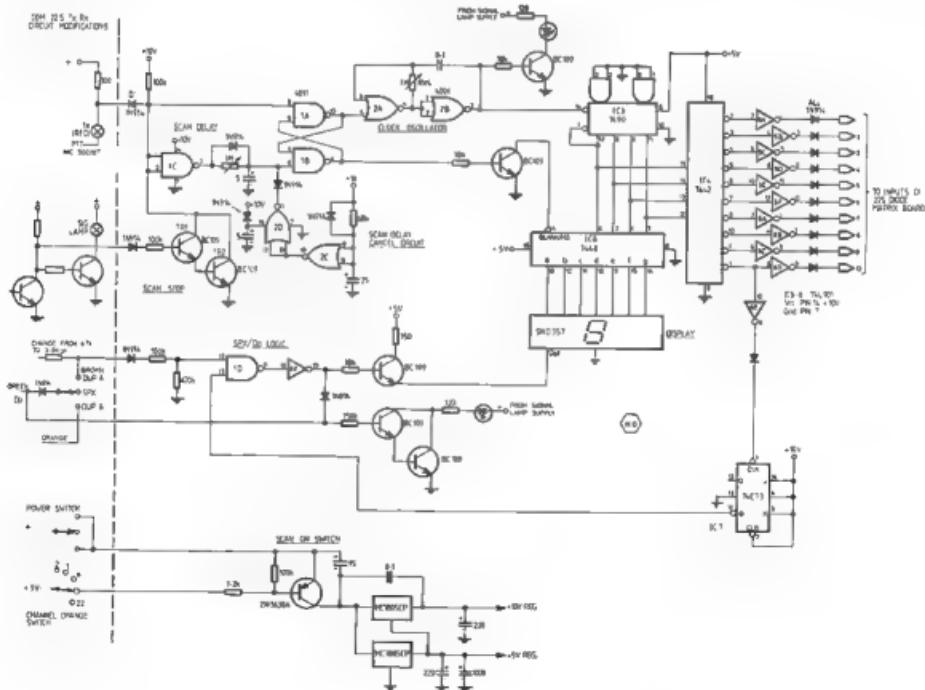


FIGURE 1: Circuit Diagram IC22S Scanner

oscillator (IC2a, IC2b). The clock speed is variable (by RV4) for optimum performance. The scan operates from the HEX inverter IC5, IC6 which switch the diode matrix and at the end of the tenth pulse the JK Flip Flop changes state and switches the receiver into the duplex mode to scan 600 kHz above the ten previous channels scanned.

The second 10 channels are indicated on the seven segment display by the dot. The section in the circuit outlined by the dotted line, containing the display unit was made outboard by the author due to lack of space for circuitry and for the want of a position for mounting the seven segment LED in the IC22S so the second 10 channels (Dp) were indicated by a red LED mounted behind the TX lamp of the 22S.

One could eliminate the display unit and the only indication that the unit is scanning would be the LED operated by the BC109 from the clock and the SPX/Dp LED.

The diode (D1) which has its anode connected to IC1 pins 1 and 2 and 8 allows isolation between the scan circuit and the IC22S circuit. The diode placed in the supply rail of IC1 (4011) was put in circuit before D1 so that when the scan was turned off the positive coming from the IC22S Tx circuit (through the 100 ohm resistor) into the gates of IC1 and out on to the scan rail did not get any further and so would not keep the scan going. Other diodes were added for the same reason.

Sometimes the DPX/SPX logic did not

change over. The addition of a 470k ohm resistor from the pin 12 of IC1 to ground cured the problem.

The main problem encountered during construction was that the scan-stop circuitry could not be taken straight from the receive lamp as the time delay for the globe to increase its resistance was enough for the scan to stop too late or not stop at all. The addition of the BC109s (TR1, TR2) and taking the mute from the previous stage provided a solution.

The other most troublesome problem was apparent voltage sensitivity of the scan even though it had integrated circuit voltage regulators. As the voltage increased the mute could not be opened by either the squelch pot not being adjusted or by an incoming signal. The 2N3638A amplified an unwanted signal on the rail of the synthesizer which got into the scanner. The problem was cured simply by decoupling and filtering of the nine volt regulated rail of the synthesizer unit which turned on the scan unit.

Other filtering capacitors were added so that on the changeover from Rx to Tx the scan did not change channels due to spikes on the rail.

The scan indication LED was mounted in the same position as the signal lamp using the same positive as same and the DPX/SPX LED also. The leads were brought past the TX lamp and through the hole behind the channel change switch.

If the resistor R157 (4.7k) in the Dp A circuit is not lowered to about 2.2k in the IC22S receiver circuit when the scanner unit is on the logic threshold between Dp A and SPX and operation may be affected. If the DPX/SPX LED is eliminated it will work on 3.9k ohms although 2.2k ohms is recommended.

I built the unit on vero board and mounted it on the same side but to the back of the synthesizing board. It was not necessary for any shielding from any other circuitry as was first thought.

This unit was built by VK6JI (Chris), who found a problem which mine did not have. Sometimes when the channel change switch is rotated while the receiver is in the SPX mode, it will go out of sync (meter lamp extinguishes) and the signal lamp illuminates. He cured these problems by two circuit alterations. They were by placing a 1000 microfarad capacitor across the 5 volt regulated rail of the scan. This also allowed the unit to be turned off momentarily, as may occur when starting the car or switching to accessory, without losing its programming. He also introduced the scan delay cancel circuit as he found that if the delay circuit was too long the scanner started from scratch when he turned off his car ignition and he missed a fair deal of the conversation. With this circuit it will start from scratch but there will be no delay before it starts scanning.

## ARCTIC/ANTARCTIC AMATEUR

Dick Goslin VK3SV

Amateurs who have worked VK6JC and been asked "Please QSL via OZ8AE" may not be aware that both call signs belong to the same operator — Jorgen ("Joe") Christensen, whose home QTH is Nykobing.

Joe is Radio Officer on M/S "Nella Dan" which, under charter to the Australian Government, transfers personnel, equipment and stores between Melbourne and our ANARE bases in Antarctica. Joe received his VK licence in November 1978 and with approval of the ship's Master and owners, and the Danish radio authorities, operates on our amateur bands, both maritime mobile and whilst the vessel is berthed or anchored at Australian ports and bases. He runs a TS520S from his cabin next to the radio room with dipoles for the various bands, and works both SSB and CW, mainly the latter.

A small ship of some 2000 tons and 70 metres in length, "Nella Dan" nonetheless has room for three helicopters and a small fixed-wing aircraft on its covered after-deck. It also carries a year's supply of provisions and water for emergency use

should the vessel be caught in the ice. Equipment, diesel fuel and foodstuffs for base personnel are carried in the forward hold. In bad conditions, the Master is able to take full control of the ship's movements and speed from a miniature "bridge" atop the foremast.

Joe's duties extend far beyond what is usually associated with a radio officer. He is responsible for payment of the crew's wages, catering records, and many other aspects of the ship's running costs and performance as well as daily reports to the owners in Copenhagen and all other communications. In short, he could well be described as "ship's secretary", with complete knowledge of the day's "doings" literally at his fingertips.

His pedestal-mounted chair is bolted securely to the steel deck, and well it needs to be. In heavy weather "Nella Dan" may roll up to 50° each side of centre, and even though firmly seated Joe needs a tight left-hand grip on one of the rack handles in order to use the key or keyer with his right hand. (Wonder how some of we land-lubbers would fare under these conditions!)

Equipment in the radio room includes a recently-installed solid-state transmitter covering all modes LF, MF and HF to 30 MHz. Full RTTY facilities are located in another corner of the room. An instrument adjacent to the bridge gives LED displays of latitude, longitude and GMT, whilst another, activated by signals from one of the Russian satellites, provides a printed read-out of the extent and location of pack-ice.

By the time this appears in print, "Nella Dan" will have returned to Copenhagen, and Jorgen Christensen will be enjoying some well-earned leave before joining another of the company's ships and heading north to Greenland.

OZ8AE/VKDJ is a man of many parts (geographically) and many accomplishments (professionally). On the infrequent occasions when he is able to spend a few weeks at Nykobing, he provides pleasure for others as well as himself with his electronic organ.

WHEN PURCHASING GOODS,  
SAY YOU SAW IT ADVERTISED

■ AR

# ARE YOU INSURED?

Mike Richter VK2BMM  
NSW W CEN Deputy Co-Ordinator

**One aspect of modern society's search for security is that we pay a small amount of money regularly to insure against the possibility of a major loss due to accident or wilful damage.**

**The Amateur Operator has several special insurance needs and hopefully the following information will help you obtain sufficient coverage at a reasonable price.**

The type of insurance coverage you will need as an Amateur may be considered in the following categories:—

1. PERSONAL Insurance to cover you against illness or injury is really required by everyone but a special need exists if you intend to take part in WICEN exercises or operations as you may be exposed to additional risks. If called out by the State Emergency Services you are covered under their insurance, however under all other situations you are uninsured. It was for this reason that NSW WICEN has taken out Personal Insurance up to \$30,000 per person with the Government Insurance Office to provide coverage during operations as well as exercises.

2. PUBLIC LIABILITY insurance to cover you against the possibility of being sued by a member of the public is required by anyone who has aerials that could fall on someone, whether inside or outside your property. Public Liability insurance up to \$250,000 is usually included with Home Contents insurance but you should check with the company to see if it covers you against collapsing transmitting aerials. WICEN operations also create the possibility of being sued, therefore NSW WICEN has coverage for \$500,000 Public Liability with the Government Insurance Office.

3. EQUIPMENT insurance to cover you against damage to transceivers or aerials due to theft, fire, storm, etc

If you only use your equipment at home it can be included in Home Contents Insurance, but some companies may require you to list expensive items or unusual items (transceivers!). The cost is around 0.8 per cent but depends on the area you live in.

If you have your equipment permanently mounted in the car, then it could be added to your vehicle's Comprehensive insurance, and it is then covered for all risks that your car is covered for. The cost of this insurance is determined by adding the cost of the equipment to the insured value of the vehicle and therefore depends greatly on the vehicle cost, no claim bonus, area of residence, etc. Do not succumb to the common pitfall of believing that your Comprehensive insurance covers equipment in the car under the Personal Effects category! This is usually only \$100 and only applies to wallets, watches, etc., that may be lost or damaged in an accident and not transceivers.

If you use your equipment both at home and outside then you really need Personal Property Insurance (previously called All Risks), which covers your equipment against theft, fire, collision, etc., no matter where it is. This usually costs 2 per cent per annum of the insured value and the company will require specific details of each item to be insured. One company provides a "Multirisk" extension for equipment covered by a Home Contents policy that provides additional coverage when

the equipment is outside the house and only costs 1 per cent (in addition to Home Contents cost). This is cheaper (0.4 per cent) than Personal Property insurance but provides almost as much coverage. Do not expect your Home Contents Insurance to cover your equipment outside the house. Even though policies do provide for items being "temporarily removed" from the house the coverage is very limited and excludes theft and items in a vehicle!

Providing equipment insurance through WICEN would prove too expensive therefore Amateurs are urged to provide their own insurance which will give coverage for normal use as well as WICEN operations.

Aerial masts should be included in the house insurance policy. Make sure that the company includes the mast in the policy, in writing, and that you are covered for the cost of replacing the mast and aerials in case of damage as well as the repair of any damage to cars and houses that the mast, aerials and guys may cause on the way down.

You may decide the insured value of your equipment within the limits of its full replacement cost (e.g. the present new cost of an equivalent item) or its depreciated value (original purchase price depreciated up to 30 per cent each year). Again you should consult the company who will suggest a value but you can have this changed if you feel it is too high or too low.

## QSP

### 4U1ITU QSL CARDS

QSL cards for all contacts from 4U1ITU are written at the time of the QSO by the operator (note visitors wishing to use 4U1ITU must first demonstrate their ability to use and tune the equipment because of operators in the past not familiar with the equipment). These QSL cards go through QSL Bureaux. Direct QSLs are not exchanged incidentally. If you intend visiting Geneva and wish to use 4U1ITU a letter must be sent at least four weeks in advance to 4U1ITU, PO Box 6, Place des Nations, 1211 Geneva 20, Switzerland—RI News October 1978.

### SORTING OUT THE YUs

"According to the present national Amateur Radio Regulations members of the family of the owner

of the station licence are allowed to operate if they have passed a kind of operator's examination. In this case, letters X or Y may be added to the original call sign. It is tradition in YU that the letter X should be added if son or daughter operate a station, and letter Y should be added if wife or husband operate (e.g. YU1UK/X, YU3AE/Y, etc.)"—RI News October 1978

### MAINLY FOR "OLD-TIMERS"

Lord, thou knowest better than myself that I am growing older and I will some day be cold. Keep me from getting talkative, and particularly from the fatal habit of thinking. I must say something on every occasion. Release me from the craving to try

to strengthen out everybody's alls. Keep my mind free from the recital of endless detail, give me wings to get to the point. I ask for grace enough to listen to the tales of other places. Help me to endure them with patience. But seal my lips on my own aches—they are increasing and my love of rehashing them is becoming sweeter as the years go by. Teach me the lesson that occurs daily; it is possible that I may be mistaken. Keep me reasonably sweet, a sour person is one of the crowning works of the devil. Make me thoughtful but not moody, helpful but not boasty. With my vast store of wisdom, it seems a pity not to use it all—but thou knowest Lord that I want a few friends at the end. By "Another OT" From QTC, October 1978.

# TELEVISION IMAGES FROM THE PAST — THE ORIGINAL SLOW SCAN?

Gill Miles VK2KI

31 Beaumont St., Camperdown, 2194

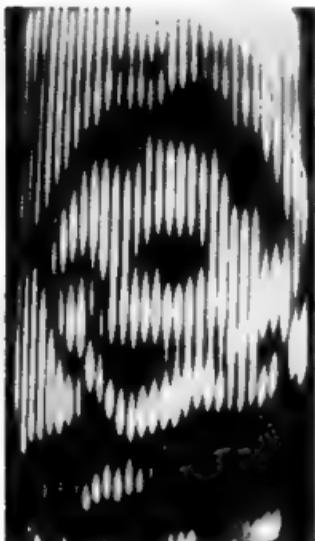
From the middle of the 19th century experimenters, physicists, engineers and others were striving for the goal of television.

The majority of these schemes were on paper only and in the years that followed the photo electric effect of selenium, the scanning disc, the amplifying valve and the neon amp were discovered.

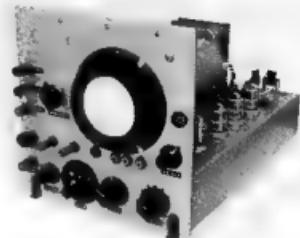
In 1923 John Logie Baird was the first to put them all together and come up with a workable mechanical television system. He was also demonstrating at that time 3D, colour, and infra-red transmissions which he called "NOCTOVISION" or night vision.

His mechanical system placed severe limitations on the picture size 1 in. x 2 in. and picture detail of 32 lines. Using a frame rate of 12.5 pictures per second the base frequency becomes 400 Hz and with picture information added bandwidth increases to about 7 kHz. These frequencies were used to amplitude modulate an RF carrier.

Baird was also able to record the picture information on to 78 r.p.m. shellac phonograph discs. He called this "PHONOVISION". The records were available to buyers of his receivers to be played into their "televisors" for tune up purposes. ■



1926 "Baird" TV Image from Phonovision disc signals into 3 Inch monitor.



3 Inch TV Monitor for Baird TV. 32 lines, 400 Hz line rate, 12.5 Hz frame rate.

Now there were at least two of these discs still in existence, one held by the BBC and the other by IBA Television Galleries in London. Both of these sources during my recent visit to the UK, re-recorded the image signals on to  $\frac{1}{4}$  in. magnetic tape at 7.5 inches per second.

On my return to Sydney I re-worked an old 3 in. CRO to operate as a monitor on the Baird System frequencies. There are eight head and shoulder images of well known people and a wedge shape test pattern on these discs.

It is surprising, after more than 50 years and re-recording, that there is enough detail left to produce recognizable pictures. Although there were no special synchronizing signals transmitted at that time it was not difficult to devise sync from the line frequency to hold the picture quite steady for photography. ■

# THE MELLISH REEF DX-PEDITION — 1978

What'll they say of Oct. 3?  
When Hell broke over the Coral Sea  
And all the world sought recognition  
In the Mellish DXpedition.

When Earth's shroud, the field 'magnetic'  
Was scorched, convulsed by the pace  
frenetic  
Of calls of Hams out to make  
A QSO — a ten sec break

Beams were swung and sets were tuned  
And if truth is known, many ruined  
As the gear ran hot, ran hot,  
Aiming at that tiny spot

Ops at rigs with purpose bent —  
Not for hours but days they went.  
Like the buzz of swarming bees

— or discordant symphonies.

Forgotten were both food and sleep,  
Chores and work — they could keep —  
Happenings were beyond belief  
In the struggle for the Reef.

Perhaps Ole Ionus smiled on you  
— and at last you got through.  
Your call plucked from the line  
With a lovely 5 x 9.

With voice gone hoarse and aching wrist,  
Each DXpeditioner did persist,  
To add another to the list,  
So that no one would be missed.

But all things must come and go  
And so has VKs hottest "show".

Now from the Reef, no sounds, no words  
Mellish is back with the birds.

So pass the 807s boys  
Here's to all that strife and noise.  
Cheers to the blokes who made it GO,  
Let the liquid "amber" flow.

When cobbers gather in the shack  
Let the rag chew wander back —  
Flip the log book to the leaf  
Of the Saga of the Reef.

Point up to the QSL  
— and say, "thereby hangs a tale to tell"  
— and tell it with the utmost relish  
About the day you knocked off MELLISH.

Alan Shawsmith VK4SS ■

# HOW TO LEARN FRENCH — THE HARD WAY

Every award hunter needs a good serial. The author gives his story.

For the award hunters there are several French awards which are very attractive and well worth a place on the shack wall or under the glass of the operating table.

Apart from those which relate to the Pacific and Antarctic areas (OTA or Diplot des Terres Australes and ARANC or Association des Rad o-amateurs en Nouvelle Caledonie Diploma for contact with six amateurs in New Caledonia) and which for the Australian amateur are relatively easy to come by, there are two which relate to metropolitan France and which are more difficult to land.

One of these is awarded to radio amateurs who are able to confirm contact with one station in each of the 17 Provinces of France and which include the Island of Corsica. It is called the DPF (Diplome des Provinces Francaises) and is perhaps more colourful than its bigger brother which is called the DDFM (Diplome des Departements Francais de la Metropole) and which involves contacting one station in each of the 96 Departments (Counties) of France — all on the same band and in the same mode. The basic certificate is awarded after the first 20 Departments have been worked and confirmed and after that, stamps of merit are awarded for contact with each 10 additional Departments which are verified until the stamp of excellence is awarded after confirmation of the entire 95. Something like our ACE Award!

After four years of intermittent effort and a score of 70 out of the 95, I decided that a 2 wavelength V beam on 14 MHz and no linear amplifier or compressor was not

quite equal to the task, particularly as the V beam could not quite be pointed in the right direction because of the lie of the land at my QTH. Something had to be done to effect some improvement and I decided that the best way to achieve this was to work on the serials which is what this article is really about.

As one of my regular contacts and good friend Pete Bowman VK5FM had assured me that putting up a quad for 20 metres was "like wrestling with an octopus", it was decided that maybe a yagi would be nearly as good and as a VS33, the Japanese equivalent of the TH3, was available second hand, this was purchased. The idea was to mount it on top of the two section wind up tower which was used to support the wire antennas at my QTH.

As one of the problems that I have noticed with beams is that they are "way up there" but not out of harm's way as I found out in Alice Springs when a half-storm deluged the traps on my ZL4BFU style monobander. Furthermore, as I never feel quite at home unless my two feet are planted firmly on the ground, we had to find a way of converting the tower into one of the tilt over variety so that we could bring the beam down when it was necessary to make adjustments.

Since the tower was already pivoted at the base it is possible to tilt it over but with a beam on top it calls for two and a half men and a carton of beer as the weight is considerable. In addition one has to wait until the weather is exactly right, which is not very often in the Adelaide Hills. Having read in "Hints and Kinks" by ARRL that an amateur in "the States" had solved a similar problem with a tele-

John Scouga, I VK5YY  
The Villa, Pecadilly Road, Crafers 5162

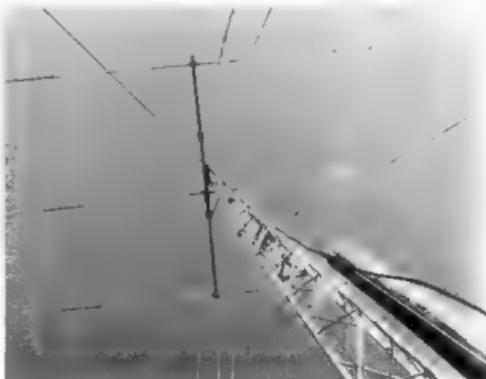
phone pole and a block and tackle I resolved to try something along these lines.

A telephone pole 30 feet long and 7 inches in diameter at the top was purchased from the local dump and it was delivered to the site where it lay for several weeks. Eventually a contractor who specialised in felling trees agreed to put it in the ground alongside the tower in line with the direction of pull and about two feet away from it. With the aid of Roger VK5RW a four inch pulley wheel was mounted inside a roughly fashioned but sturdy housing and mounted near the top of the pole. This job was done whilst the pole was still on the ground and the pulley was held in position by a long U bolt which ran right through the width of the pole. So that the pulley wheel would be free to rotate without scraping the sides of the housing, two washers were made up from tin plate as it was feared that the cable might slip down the gap alongside the wheel if it were wide enough.

To cement the pole in the ground near the tower took four strong men about an hour to do as telephone poles are heavy and cumbersome devices. After the pole has been dug down to about five feet, it is stepped on one side so that the toe of the pole can be angled into it. A crow-bar is positioned on the opposite side of the hole so that the pole will not tear the side on the way in. It should be canted slightly outward from the tower so that the top of the pole is two inches or so further from it than the base. This allows for movement towards the tower over a period of time caused by the weight of the tower as it is being raised and lowered. This can cause the pole to shift in the ground slightly.



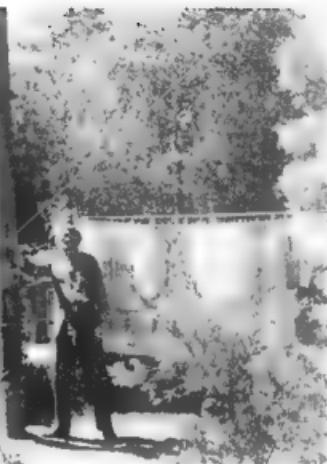
View from the tennis court side



And she is up — ready to work the DX

The cable is attached to the tower about two-thirds of the way up the first section at about 20 feet off the ground. The tower is lowered to its telescoped height of 22 feet before it is tilted. The cable, which is heavy duty steel type, is passed through the pulley and down to a McPherson spur gear ratchet winch which is mounted on the pole facing the tower at a convenient height. The winch is capable of taking a 5000 lbs. (2272 kgs) strain and provides a choice of two ratios, the lower one being 10 to 1. It is possible that a lighter winch could serve equally well in this application. For light towers, a section of two inch water pipe could take the place of the telephone pole. The pulley must be so placed that the pull of the tower is in a straight line. The pole can be turned in the hole before it is filled in by passing a rope around it and pulling it in the desired direction. This is good exercise even for a strong man.

The day chosen for raising the mast was fine with a light breeze. Ropes were attached to the mast and rigged so that any tendency for side swing could be counteracted but in conditions of light wind this did not appear necessary and once the beam had been assembled and bolted into position the rest was easy and allowing for time to find a camera and take a photograph the mast with the beam on top was up and fixed safely into position in less than ten minutes. The only casualties in the operation were two tomato plants that were trodden down whilst the telephone pole was being manoeuvred into the hole.



Roger Wreford VK5RW turns the handle to raise the antenna. We didn't even have to get the XYL to take the washing off the line.

For a while it looked as though the problem of keeping the pulley moving freely without leaving terra firma to all it from time to time might have meant getting the ladder out after all. However, a light piece of half-round dowelling was attached to the end of a long length of light timber and a wire swing which held a small

container (pill box or similar) arranged so that it could be turned upside-down, was fixed to the end of the dowelling rod. In this way one can send the oil up to where it is needed and stay on the ground at the same time. Be careful not to stand directly below whilst performing this delicate task. ■

## THE BASIC PRECEPTS OF SCIENCE

Submitted by E Renouf VK2AWR

**GARY OWEN'S AXIOM** — Gary Owen, of New Mexico, has supplied these interesting observations after many years of Amateur Experiments. His experience and observations are the same as ours.

**ALLENDORFER'S AXIOM** — When all else fails, read the instructions.

**BASSAGORDIAN'S BASIC PRINCIPLE AND ULTIMATE AXIOM** — By definition, when you are investigating the unknown, you do not know what you will find or even when you have found it.

**CALLAHAN'S COMPENSATION COROLLARY** —

The experiment may be considered a success if no more than 50 per cent of the observed measurements must be discarded to obtain a correspondence with theory.

**FINKELRAT'S FUTILITY FACTOR** —

No experiment is ever a complete failure, inasmuch as a well-written account of it can serve admirably as a bad example.

**FLANNERY'S EFFECT** —

Those items most urgently needed are inversely available to the degree of urgency of the need, i.e. in any pile of papers,

when search commences at the top, the sought-after paper is at the bottom or vice versa.

**FLIEGELBAUM'S LAW OF THE PERVERSITY OF INANIMATE OBJECTS** — Any inanimate object, regardless of its composition or configuration, may be expected to perform at any (unpredictable) time in a totally unexpected manner for reasons that are either totally obscure or completely mysterious.

**GUMPERSON'S LEMMA** —

The probability of a given event occurring is inversely proportional to its desirability.

**HORNER'S FIVE-THUMB POSTULATE** — Experience varies directly with the amount of equipment irrevocably ruined.

**LOUGHBRIDGE'S IMMUTABLE REALITY** — The intensity of the desirability of an event is directly proportional to its occurrence at a wholly inopportune time.

**MURPHY'S LAW** —

If anything can go wrong, it will (e.g. if you drop a piece of toast, it will inevitably fall jam-side down).

**PATRICK'S THEOREM** —

If the experiment works, you must be using the wrong equipment.

**SCHIMMELPFENNING'S CONSTANT** —

That quantity which, when multiplied times, divided into, added to, subtracted from or taken to the power of the answer you got, yields the answer in the back of the book.

**SPINKENHEIMER'S SPARE PARTS PRINCIPLE** —

The accessibility, during recovery of spare parts which fall from the workbench, varies directly with the size of the part and inversely with its importance to the completion of the work under way.

**WIRESTRACK'S WELL-ORDERED PRINCIPLE** —

Those supplies necessary for yesterday's experiment must be ordered by no later than noon tomorrow.

**STAPP'S LAW** —

The Universal aptitude for ineptitude makes any human accomplishment an incredible miracle.

E. Renouf VK2AWR ■

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SELECTIVE RANGE OF AMATEUR EQUIPMENT

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Input-Output	Z <sub>in</sub> 500 Ω	Z <sub>in</sub> 500 Ω	Z <sub>in</sub> 500 Ω	Z <sub>in</sub> 500 Ω	Z <sub>out</sub> 1200 Ω	Z <sub>out</sub> 500 Ω	Z <sub>out</sub> 500 Ω
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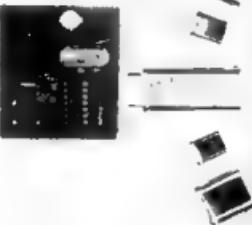
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- Stability: less than ±500 Hz drift for any 30 minute period after warm-up
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- Audio output: 2 watts
- Power requirements: 100/110/117/200/220/234 VAC, 50/60 Hz
- Power consumption: 25 VA
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# A MOBILE WITH A COAST-TO-COAST GROUND SYSTEM

On September 1st, 1978, Bill Main VK6NDZ commenced operating as a railway mobile station by contacting A4XGY at 0435 GMT on 28.595 MHz. Since then many VK and overseas amateurs have become familiar with the voice of "VK6NDZ railway mobile." The success of his operation has amazed no-one more than himself.

The often surprising signal reports obtained by this very QRP station are attributed to an extensive ground system, which extends, in fact, from the Indian Ocean to the Pacific Ocean, i.e. the railway line itself which is continuous between Sydney and Perth.

Bill's railway mobile station is very simple and consists of a TenTec Argonaut 509 transceiver with an input power of 5 watts. The antenna is a stainless steel  $\frac{1}{4}$  wave whip on 10m with centre loading for 15m and 80m. The loading coil/coils not in use are shorted out. Most guards' vans have brackets either side which are

used for mounting kerosene lamps in the event of an electrical failure in the van. However, Bill finds them far more suitable for mounting his antenna! Power to the transceiver, on passenger trains is provided by using the 240V AC generated on the train and on goods trains the 24V DC supply is reduced to 12V using a regulator. Many thanks are owed to VK6ZGQ, Lewis Pannell, who designed and constructed the antenna at extremely short notice in July 1978. Bill normally uses a headset for ease of operation.

He has worked all VK call areas including VK9 and VK0 from the train. Other countries worked include: W, VR1, ZL, P29, HC, G, HB, YB, 9M2, 9V1, JA, DK, CT, A4, ZS, 8J, UA, and 3B8.

Recently the Perth Radio League, of which Bill and myself are members, introduced 3 Awards: These are: the WAY 79 Award, in celebration of WA's 150th Anniversary; the Black Swan Novice Award and the Zone 29 Boundaries Award.

Dianne Main VK6NGO  
P.O. Box 483, Kalgoorlie, 6430

Whilst Bill can assist stations to qualify for two of these awards simply by virtue of being a VK6 novice station, the unique mode of operation enables him to qualify many stations for the Zone 29 Boundaries Award. To qualify for this award stations need to work 1 mobile station whilst that station is actually crossing a Zone 29 boundary. Bill regularly crosses the VK6/VK5 border during his work as a railway guard. He is also the Awards Manager for the Perth Radio League. Details of the awards can be obtained by writing to him at PO Box 483, Kalgoorlie, WA 6430.

The Perth Radio League also has a Club station with the callsign VK6NFL, which at times may be used by Bill whilst rail mobile.

In the near future he hopes to increase the power of his station to 30W PEP by utilizing a small linear.

If you hear Bill operating rail mobile at any time, give him a call, he'll be more than pleased to confirm any contacts made from this unusual mobile station. ■

LEFT: Antenna mounted on bracket on side of Indian Pacific guard's van.

BELOW: TenTec Argonaut 509 in operating position on a goods train. Regulator for reducing 24V DC to 12V on floor of train.



# COMMERCIAL KINKS

RON FISHER  
VK3OM

Modifications to the FT-101 to cure strong signal overload, published in the November 1978 issue of Amateur Radio, has proved to be useful to many 101 owners, but at the same time perhaps caused a little confusion where the details do not exactly apply to your particular transceiver.

A recent letter from Les Diner VK5NJ helps to sort some of these problems out. Over to Les.

Having implemented the modifications on my FT101B I find the results most pleasing and certainly transform what is normally a noisy receiver into a really first class unit which would compare favourably with any good "ham" band receiver. The signal to noise ratio is the most noticeable improvement even though the mod. is essentially intended to reduce front-end overload. It certainly does this also.

Previously I have been most satisfied with the AGC amp designed by Arn VK5XV, using a UA741 IC, and this certainly eliminates front-end overload, but the ZL2BAF mod. of applying AGC to additional stages is better and is a sound theory and good design practice.

Actually some sorting out was necessary with my particular unit, Serial No. 107936, as several mnr points did not agree with the article and are described as follows:-

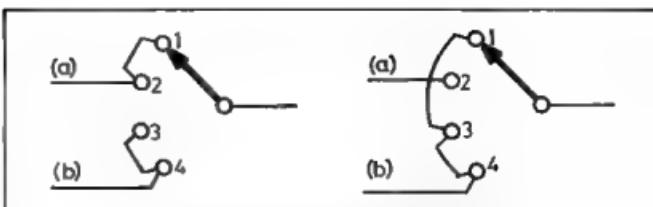
1. The bi-polar transistor preceding the noise gate is Q1 in my unit and not Q2 as stated in the article.
2. The base bias resistors are R1 and R2 (4.7K and 22K respectively) and not R5 and R2.

Once this was sorted out the job was quite simple. Actually, resistors of 1 meg and 2.2 meg were used in lieu of 1.8 meg and 1.2 meg as recommended, the latter values not being on hand.

A complete re-align (as described in the handbook) was necessary to make sure all circuits were peaked, but overall the modification is a very worthwhile improvement for any FT101."

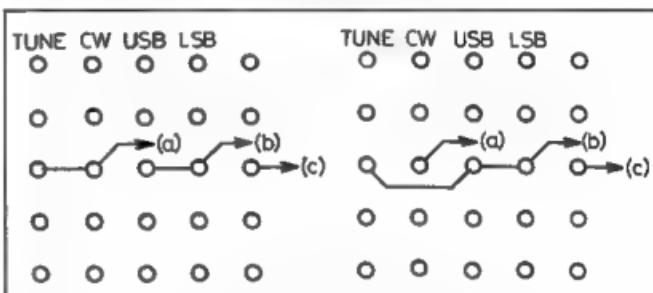
Now a simple modification to the popular TS-520 from Alan Bolton VK5TT. This one will interest the CW operators.

The CW filter of the TS-520 is much sharper than the SSB filter, which is ideal when listening to a CW signal once it is tuned in. When tuning across the band for a CW signal, or listening to a reply to a CQ call, the wider bandwidth of the SSB filter is more convenient. This filter can be selected using the mode switch by turning to the USB or the LSB positions, but this also effects the audio note of the CW signal. This means that once the signal has been identified with the wider filter it is difficult to switch to the CW filter without losing it.



Physical layout of the mode switch contacts viewed from underneath

(a) — brown (to CW filter)  
(b) — orange (to SSB filter)  
(c) — orange (output of switch)



Circuit diagram of the change to the mode switch

1 — TUNE 2 — CW 3 — USB 4 — LSB  
(a) — brown lead to CW filter  
(b) — orange lead to SSB filter

It is possible to change the TS-520 mode switch so that the tune position is used to give the wider SSB filter with the same audio note as for CW reception. Normally the tune position on the TS-520 uses the CW filter; changing to the SSB filter simply involves changing over one lead on the mode switch.

The mode switch has 5 wafers, and the filter selection is on the centre wafer. Access to the lead is obtained by removing, in sequence, the TS-520 covers, dial, knobs, nut on channel select spindle and then the decorative front panel. Then the JJY/WWV switch can be unscrewed and moved, with the leads still connected. The mode switch can be moved also, giving access to the terminal to be reconnected. The physical layout of the mode switch contacts are as shown

After this modification the tune position can be used to locate the CW signal with the wider filter. Once the signal has been found the audio frequency can be adjusted so it will fall within the narrower passband of the CW filter while the mode switch is in the tune position. The audio note will now be unchanged when the CW filter is used. It should be noted that on the wider bandwidth some CW signals may be on the

incorrect (upper) side of the demodulating carrier, but this can be realized by tuning across the CW signal. The fact that the note of the CW signal is unchanged when switching between filters makes the search for them far more convenient. ■

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# NOVICE NOTES

## THE CQDX RADIO GROUP

I became an amateur purely by coincidence. I spent most of my life as a musician but gave that away shortly after I married. I'd heard of Amateur Radio of course, but I'd always imagined that the level of knowledge was far too hard to obtain. Through my love of music I'd developed an interest in the technical side of audio, and that was the field in which I was involved when our son Robert was born. The night he arrived on the scene changed so many things that I find it fascinating to look back and see how many people's lives it changed. This article is to do with radio so I hardly think it is relevant to mention the obvious changes that occur when a man becomes a father for the first time.

Quite a few people had said they could not imagine me walking down the street pushing a pram, but that is in fact just what happened. The difference was that I had a one channel walkie-talkie antenna sticking up out of the "Mobile" and Mum was back at the "Base" with the other unit. I can't remember what the call sign was now . . . V followed by about five

figures I think. But at any rate it was very useful for obvious reasons.

The puzzling part was that I kept hearing strange call signs such as "Foxrot Charlie One" and others, and I found that I was not the only one on the air. Evidently there was something called CB around which needed investigation, I became a CBer, and CB then was a little bit different from what it seems to be now.

I will never knock CB because it brought together a lot of very decent men (and women) who might otherwise never have got to know each other. What fun we had, ragchewing, looking for "Clowns", having "Eyeballs", etc. A mixed bunch of guys and gals, but within that bunch quite a few were genuinely interested in radio communication. When AM CB became crowded we moved "Up" to sideband. The lure of skip and "DX copies" added to the interest and the nucleus of a club formed, although we didn't know it then.

I couldn't help thinking that there had to be something more to radio than this. A chance meeting with Howard VK3ZJY, who was instructing Amateur Radio, found me attending his classes. I discovered that the best way to learn is to teach, and I set up a radio school for the members of our little group at my home. Three of us subsequently obtained licences and that attracted a few more.

By now the CB scene had become what it is today, and the serious radio enthusiasts were tending to go all out for their Novice licences or move into the UHF bands on CB. Many still stayed with 27 MHz so our Club, the CQDX Club, was formed, with myself as secretary. Initially, most of the members were young, but now more of the older men were joining and many are the same ones who used to rag-chew on 27 MHz sideband. The wheel is turning full circle, but the circle is far far wider.

I find it difficult to describe my feelings when I first set out with my own "Call". It was like watching the world from behind a window, then suddenly walking outside with the horizon stretching in every direction. Romanticism . . . perhaps, but that's how I felt and I wonder how many others have shared that feeling. My instructor Howard, Harry VK3EK, Len VK3NAC and others had demonstrated courtesy and proper procedure, as I watched them operate their stations and I have tried to emulate this and in turn pass it on to the members of our group . . . thus the reasons for my notes.

Generally I have found that by nature most amateurs are individualists and I accept each in this way. Such thinking is reflected in the Constitution of our Club, membership being open to anyone with a genuine interest in radio COMMUNICATION, and I stress the last word, as it includes CBers, SWLs, Amateurs or anyone interested in the interchange of ideas between people. Radio just provides the com-

mon ground. Maybe we don't all live up to such high ideals, but I think most of us try.

The name was of course derived from the fact that CBers and Hams alike use the term CQDX . . . it means I wish to talk to someone . . . what a good idea in the materialistic world we live in these days.

I like DX . . . those who have heard me working late at night will doubtless confirm this, but I also like to stop and talk . . . to find out something about the other guy, providing of course that there are not others waiting in a pile up, and at least then his card, if and when I get it, will mean just that much more. If Robert ever follows in my footsteps . . . I sincerely hope that this is one aspect of Ham Radio that he will adopt . . . he got me into it, I hope he carries the tradition on.

If anyone is interested in the Club or its ideals and aims, the address is PO Box 79, Heidelberg 3084, Victoria.

Trevor C Reid VK3NNR

## EDITOR'S NOTE:

From next month, we shall commence serialising parts of the CQDX Radio Group Handbook. It will make interesting reading to all novices and newcomers (VK3UV).



## MIDLAND ZONE FIELD DAY

To stimulate interest of the Novice element in the Zone all stations in the Field Day Contest 10/11 February 1979 with the exception of the 2 metre section were manned by novice operators using novice power, all of which was within the 30 watts PEP allowed, 80 metres proved to be the highest scoring section in the six hour period with contacts into VK1, 2, 3, 4, 5 and 7, and ZL1, 2, 3 and 4 zones from a



VK3NND watches VK3BIP and VK3AGM complete running repairs

Trevor Reid VK3NNR with son Robert, who has "worked" several Statewide amateurs under supervision. Two-and-a-half year old Robert has been given the handle "Big Bubba One" by some of the locals.



Joan VK3NLO (nice lady operator)

(Midland Zone photos by courtesy Geoff VK3NTN and printed by Harmonic of VK3NOV)

simple co-ex fed half wave dipole strung up a gum tree, I suppose being about 630 metres above sea level, helped a bit.

The 2 metre boys had a very productive six hours both on 2 metres FM and SSB, and the assistance of several of the AOCOP members in the zone with their knowledge of antennas and how to get them into the air quickly was fully appreciated by all novice operators.

This was a very good exercise for our novice operators and next year we hope to give other zones and clubs a run for their money. Gallons of coffee were con-

sumed, but there was a singular lack of B07s. The journey down the Mount was very enjoyable with the 10 metre mobiles taking full advantage of the propagation at 1.00 a.m. on Sunday morning, with running commentaries of the skill and otherwise of the drivers who had not been up to one of the highest points in our Zone. Amateur radio is a hobby much enjoyed by our novices in the zone and we look forward to advancing in the skills required for that "full ticket", field days take you a long way in giving you the incentive to study and up-grade your licence.



L to R.: Murray VK3AMP and Norm VK3BNU on 2 Mx FM with George VK3ZZI solo on 2 Mx SSB. Don L31093 and his children in background.

BELOW: Murray VK3NOV, Zone Secretary on 10 Mx SSB.



VK3ATO/P Mount Alexander, near Harcourt, the voice of the Midland Zone, WIA, Victorian Division.



## AROUND THE NOVICE SHACKS



Stan Tayler VK3NGN is one of the more active members of the Western Suburbs Radio Club in Melbourne. Stan licensed since 1977, operates either his TS-820 modified or an FTDX400 modified into a three element tri-band Yagi, and on 80 metres uses a mobile whip mounted above his superbly constructed shack. Stan recently was voted Secretary of the club for the second consecutive term, an indication of the excellent job he does.



Formerly a VK6 novice, Ward Long is now VK3NAJ and has a very impressive and extremely operational shack, complete with a recently installed tower and TH6 tri-band beam. Ward is also active in the mobile with an FT7 and helical whip. And as you can see by the photograph, Ward plays a mean golf round as well as having a mean signal on HF!!

# THE ITU WARC SEMINAR— SYDNEY

The MLC Centre is a tall octagonal building in the heart of Sydney, Australia. On the 50th level spectacular views of the Harbour Bridge, the Heads and even in the distance Botany Bay can be seen from every window.

It was in this magnificent setting that the third of the ITU Regional Seminars was held, the others being held in Panama and Nairobi. 170 people took part from 37 countries and organisations. The Seminar was held on the 29th March to the 10th April, 1979, and was opened by the Australian Minister for Posts and Telecommunications, Mr. A. Staley.

The main purpose of the Seminar was to familiarize the many countries who will be attending their first Radio Conference, the World Administrative Radio Conference 1979, with the requirements for revising and updating the Radio Regulations. The Seminar also discussed topics of interest to countries in the Region, including communication problems associated with Island countries and the use of high frequency radio for domestic communications.

On Saturday, the 31st March, the Wireless Institute of Australia, for itself and for the International Amateur Radio Union, hosted a reception in honour of participants on the 50th level of the MLC Centre.

Amongst guests were the Secretary-General of the ITU, Mr. Milli, and Mr. R. E. Butler, the Deputy Secretary-General.

In an adjoining area a continuous

videotape showing Amateur activities and relating those activities to the definition of the Amateur Service in the Radio Regulations was shown and many of the guests took time to watch this 5½ minute segment. Booklets from IARU Region 2, with an insert giving names of IARU Region 3 member societies, describing the Amateur Service, were available and very many of the delegates accepted these booklets.

An IARU receiver was on show on a corner table and attracted considerable interest. Delegates from many countries,

particularly from developing countries, were very interested in this example of a low cost receiver, capable of receiving SSB and CW, that could be simply assembled.

For the small number of prominent Australian Amateurs who acted as host during this reception it was a wonderful opportunity to meet those involved in frequency management from so many countries and, in many cases, to answer their questions about Amateur Radio.

Michael J. Owen VK3KI.



WIA Federal Vice President, Peter Wolfenden VK3ZPA shows the IARU receiver to a delegate from Sri Lanka.



Federal President of the WIA, David Wardlaw VK3ADW, with ITU Secretary General, Mr. Milli and WIA IARU Liaison Officer, Michael Owen VK3KI.



At the Seminar — 1. to r.: Mr. Sui Hongliang, Michael Owen VK3KI, David Wardlaw VK3ADW, Mr. Nie Bangguo, Mr. Zhao Xintong, Mr. Ding Yixing and Mr. Liang Shi — the delegates from the Peoples Republic of China together with the Australian Amateur delegates.

# CHIRNSIDE ELECTRONICS



## "YAESU" FT-101ZD

FT-101Z 160-10 M Adj. N/F IF shift	\$775
OPTIONAL	
FAM...	\$39
DC-DC for 101Z	\$79
FT-901D-M Range	\$POA
FT-901 Ext VFO for FT-101Z	\$495
FC-901 Antenna coupler	\$269
YO-901 Panoramic adapter, monitor scope	\$499
TV-801 6M, 2M, 70 cm. A11ac.	\$399
SP-901 Ext. speaker for 901-101Z	\$53
FRG-7 Communication receiver	\$319
FRG-7000 Communication receiver	\$595
LF-2A Narrow band filter FRG-7	\$20
FT-101Z 160-10 M Transceiver 160W.	\$623
VC-7-B Digital display for FT-101Z	\$123
YE-7-A Hand Mic for FT-101Z	\$21
YD-148 Desk Mic for all Yaesu	\$49
VP-150 150 Watt dummy load and Watt meter	\$112
FL-110 Sound state amp, 160-10 M.	\$239
FL-2100B 1200W Amp.	\$POA
GTR-24 24 hour world clock	\$33
CF-2278 2M. Digital transceiver	\$399
FT-2278 2M. Digital transceiver	\$329
FT-2278A 2M. Scanning digital transceiver	\$379
FF-50DX Low pass filter 2 kW.	\$40
YO-101 Monitor scope for FT-101E	\$379
VC-601B Digital display, Freq counter FT-101E	\$279
FT-101E 160-10 M. Transceiver.	\$POA
Optional X-tall filters FT-901, FT-101Z	\$59

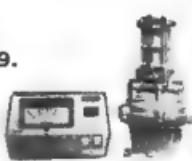
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\$279.



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### MONO BAND BEAMS.

AB 3-10 • 3 el. 10 M.	\$89.-
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AB 5-15 • 5 el. 15 M.	\$139.-
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AB 4-20 • 4 el. 20 M.	\$159.-

### MULTI BAND BEAMS.

AM 4-2 • 15-10 M. \$159.-

**YAESU** Mobile Antennas.

RSL base mast Inc. 2 M.	\$29
80 M. Resonator	\$22
40 M. Resonator	\$21
20 M. Resonator	\$20
15 M. Resonator	\$20
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AMV-5 • 80-10 M.  
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For dipole or beam.  
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HC-250 Tokyo Hy-Power Labs Transmatch	\$85.
250W PEP	\$85.
HC-500A Tokyo Hy-Power Labs Transmatch	\$119.
500W PEP inc 160M.	\$119.
HC-750 Tokyo Hy-Power Labs Transmatch	\$199.
2.5KW PEP	\$199.
FC-301 Yaesu 500W inc SWR and PWR Meters	\$239.
FC-901 Yaesu 500W inc SWR and PWR Meters	\$269.

### KENWOOD

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PRICES. NOT OUR PRICES!!!

TS-202S 160 10 M Transceiver AC	\$POA
VFO-820 Ext VFO for S20	\$163
D5-1A DC-DC for TS-520	\$79
TS-820S 160 10 M Transceiver	\$1392
VFO-820 Ext VFO for B20	\$195
TS-120V 80-10 M Transceiver	\$POA
VFO-820 Ext VFO for TS-120	\$148
PS-120 Power VFO for 120	\$110
SP-120 Ext speaker TS-120	\$40
SM-220 Station monitor scope	\$519
BS-5 Panoramic adaptor for S20S	\$566
BS-2 Panoramic adaptor for 820S	\$566
AT 200 SWR meter, antenna coupler	\$185
RD-1000 Dynamic load 150 mHz-300W.	\$299
TR-710 70-2 M Antenna	\$469
MIC-10 Hand mic.	\$26
MIC-35 Hand mic. noise cancel.	\$26
MIC-50 Desk mic.	\$49
YG-339SC CW filter for S20	\$59

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# Grand Opening Specials

Emona Electronics is proud to announce the opening of our retail EMTRONICS shop at 649 George Street, City (Sydney).

Beside a whole range of AMATEUR RADIO EQUIPMENT and special communication systems such as RTTY and SSTV, we are also entering the exciting field of HOME and HOBBY COMPUTERS.

*To mark this special occasion, all products sold during the month of JUNE will be sold at greatly reduced prices.*

## HERE ARE SOME OF OUR JUNE SPECIALS

**NATIONAL RJX1011D**—the king of all transceivers ~~\$1990~~ now \$1690

### YAESU PRODUCTS

FT101E Transceiver AC-DC  
 FT301 Transceiver  
 FT301D Transceiver Digital  
 FP-301 AC Power Supply  
 FRG-7 Receiver  
 FRG-7000 Receiver

### LUNAR PRODUCTS

\$775	HF-3-100L2 Linear Amplifier	\$225
\$790	BI-LINEAR VHF Model	\$259
\$890	28-432 Low Noise Preamplifier	\$42
\$165	PA-28, VHF Inline Preamp, Low Noise (10m)	\$54
\$315	PA-50B, VHF Inline Preamp, Low Noise (6m)	\$54
\$595	PA-144B, VHF Inline Preamp, Low Noise (2m)	\$54
	OSCARBOX J, UHF Down Converter	\$98

### KENWOOD PRODUCTS

TS-520S Transceiver  
 TS-820S Transceiver  
 TS-120V Mobile Transceiver

### INFO-TECH PRODUCTS

\$850	Model 75 RTTY to Video Converter	\$448
\$1090	Model 150 RTTY Keyboard	\$407
\$550	Model 200 RTTY and ASCII to Video Converter	\$668
	Model 300 RTTY and ASCII Keyboard	\$564

### DENTRON PRODUCTS

GLA-1000 Linear Amplifier  
 HF-200A Transceiver  
 MLA2500 Linear Amplifier  
 CL PPERTON-L 2kW Linear Amplifier  
 MT3000A Antenna Tuner  
 MT200A Antenna Tuner  
 SUPER TUNER—Plus  
 160/10AT Super Tuner  
 JR Monitor  
 80/10AT Tuner  
 W2 Wattmeter  
 BIG DUMMY Load  
 DTR-2000 2kW Linear Amplifier  
 ALL BAND DOUBLET

### ROBOT PRODUCTS

\$489	Robot Scan Converter	\$955
\$725	12 in. Video Monitor AVM-090	\$289

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Model 333 Dummy Load Wattmeter  
 Model 334 Dummy Load Wattmeter  
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JB2000SW Wattmeter/SWR Bridge	\$75
JB1000S/M Scope/Wattmeter/SWR Bridge	\$310

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SHURE 444	\$55
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160-10m P.A. 2 x 6146B **\$779**

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Add P&P \$2.50 per manual

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YC-503S Counter 500 MHz

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SP-901 External Speaker for FT-101 and FT901

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FTV-901R, YQ-901, SP-901P, F-101, & DC kit.

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CW Filters for 101Z and 901

\$65

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FRG-7 Reciever

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\$20

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YH-55 Yaesu Headphones, 8 ohm

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YD-844 and YD-148 dual impedance desk mics., 600 ohm/

50k ohms

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YE-7A 600 ohm and YD-846 50k ohm desk mics.

\$21.50

RS Series Yaesu HF Gutter mount mobile Antennas —

\$29.90

RSM2 base inc. RSE2A stub mast, with Co-ax. cable

attached

Resonators — RSL-3.5 \$22, RSL-7 \$21, RSL-14 \$20, RSL-21 \$19,

RSL-28 \$19, RSL-145 (5/8 2m) \$24.

6JS6C P.A. Valve FT-101E

\$11

Other Yaesu valves also available

SRC-146A Standard (Japan) 2m hand-held 5 chan. 2W FM. transce ver. built-in mic, spkr., "S" meter, inc carrying case and crystals, to clear

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Base adaptor SRC

\$23

Also available Rubber Jack, optional hand mic., mobile adaptor, Nicad batteries.

The above list is not complete. There are many more items available. Contact us for your requirements.

Above prices (R.R.) no S.T. Freight is extra. Prices and specs. subject to change. 90 day warranty on sets, excluding power valves and power transistors. Full service facilities and comprehensive range of spares.

Most items ex stock at time of advert preparation.

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103 LBX \$165, 502 CXX \$255, 1103 MXX \$395,  
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(Note: the Hidaka 'VS' beams are balun. VS-33 & DX33 equil to TH3 — Mk II DX-32 & DX-34 are 2 and 4 element versions. All heavy duty construction, 2 kW rating)

DENSO 430 Anti-Corrosive Compound for joining antennas & beam elements, per tube add \$1.10 P&P \$2.90

Hy-Gem BN-86 balun

\$28

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\$4.95

Co-Ax Switches, TWS-120, 2 position

\$18

ASW-1, 5 position \$34, 590G, 5 position \$39.90.

Antenna Egg Insulators, Porcelain

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HC-75 \$85, HC-250 \$89, HC-500A \$119, Yaesu FC-901 \$245

#### SWR METERS:

RS-101 \$7.50, SWR-40 \$15, SWR-200 dual \$75, FSI-5 dual \$29.

#### MORSE KEYS:

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Ask your nearest Kenwood distributor for your extra special deal on the ever popular TS-520S all band (1.8 to 29.7 MHz) SSB Transceiver. Amateurs throughout the world acclaim this rig which was specially engineered for the serious enthusiast.



### TS-820S series

If you require a more progressive HF Digital Transceiver then move up to the functionally engineered TS-820S Pacesetter rig.

Due to production delays overseas, the TS-120S and the TS-180S Transceivers previously advertised will not be available until the end of June.

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31 Whiting Street, Artarmon, Sydney, N.S.W. 2064. Telephone (02) 438-1277

#### Interstate Distributors:

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**PLUS MANY OTHER REGIONAL OUTLETS THROUGHOUT AUSTRALIA**

# VK/ZL/OCEANIA DX CONTEST - 1979

The WIA and NZART, the national amateur radio associations in Australia and New Zealand, invite world-wide participation in this year's VK/ZL/Oceania DX contest.

## WEEKEND

Phone — 24 hours from 1000 GMT, Saturday, 6th October, to 1000 GMT, Sunday, 7th October, 1979.

CW — 24 hours from 1000 GMT, Saturday, 13th October, to 1000 GMT, Sunday, 14th October, 1979

## RULES

1. The sections in the contest are:—

- (a) transmitting phone, 24 hour period,
- (b) transmitting CW, 24 hour period,
- (c) transmitting phone, 8 hour period VK/ZL only,
- (d) transmitting CW, 8 hour period for VK/ZL only.

2. All amateur bands may be used, but no crossband operation is permitted. NOTE: VK/ZL stations, irrespective of their location, DO NOT contact each other for contest purposes EXCEPT on 80 and 160 metres on which bands contacts between VK and ZL stations are encouraged.

3. Only one contact per band is permitted with any one station for scoring purposes.

4. Only one licensed amateur is permitted to operate any one station under the station's call sign. Should two or more operate any particular station, each will be considered a competitor and must submit a separate log under his own call sign. This is not applicable to overseas competitors operating club stations.

## CYPHERS

A serial number of five or six figures will be made up of the RS (phone) or RST (CW) report plus three figures, beginning with 001, increasing in value by one for each successive contact.

## 6 HOUR SECTION (FOR VK AND ZL ONLY)

Operation must be continuous and a 24 hour entrant cannot enter this section

## 7 SCORING

(a) For Oceania stations other than VK/ZL

2 points for each contact on a specific band with VK/ZL, and 1 point for each contact with the rest of the world

(b) For rest of the world other than VK/ZL

2 points for each contact on a specific band with VK/ZL, and 1 point for each contact with Oceanian stations other than VK/ZL

(c) For VK/ZL stations

1 point per contact, multiplied by the prefixes worked on that band. NOTE: W1, K1, WA1, A1, N1

(although in same call area) are different prefixes and count as multipliers. W6AA/1 is same as above and counts as W1 and not W6; JK1AA/5 will become the common prefix for the "S" area, namely JA5

### (d) 80 metre section

For contacts between VK and ZL, each VK and ZL call area will be considered a "scoring area", with each different call area counting as a multiplier

### (e) 160 metre section

As for 80 metres, plus contacts for scoring permissible between VK/VK, ZL/ZL

## 8 LOGS

(a) Logs to show, in order — date, time in GMT, call sign of station worked, band, serial number sent and received. Separate log for each band required

Summary sheet — to show call sign, name and address, and each band, QSO points multiplied by VK/ZL call areas worked

All band score will be total QSO points for all bands multiplied by total VK/ZL call areas worked on all bands.

(b) VK/ZL stations — as for overseas stations and the summary sheets to show call sign, name and address, and each band, QSO points multiplied by prefix worked on that band. All band score will be total of single band scores. Signed declaration that all rules and regulations have been observed also required

## IMPORTANT NOTE:

Should a VK or ZL entrant so desire, submission of a summary sheet signed by at least two other operators, who need not have been in the contest, will be accepted by the contest manager, who reserves the right to call for the log should he so desire.

## AWARDS

World wide, except VK/ZL

(a) Mounted medallion to top world scorer

(b) Bronze medal to top scorer in each major area of contest activity

(c) Top scorers in each country (call area WJU) will receive a certificate. Depending on activity, other awards may be made.

## VK and ZL stations

(a) Mounted medallion to top scorer in VK and in ZL (two medallions)

(b) Bronze medal for top scorer of each band for VK/ZL (six medals).

(c) Top scorers in each call area of VK and ZL

(d) Top scorers in VK and ZL on each band

## ENTRIES

Should be posted to:—

WIA,  
GPO Box N1002,  
Perth, West Australia 6001,  
or VK6NE-WIA VK/ZL Contest Manager,  
388 Huntriss Road,  
Woodlands, West Australia 6016

To arrive on or before 31st January, 1980.  
Results may be obtained by enclosing 1 IRC with your log — VK6NE.

## HISTORICAL FILM

At this year's Federal Convention on David Wardlaw VK3ADW, the Federal President, presented a copy of an historical wireless telegraphy film to the Institute

The film, of French origin, does not deal directly with Amateur Radio, however, because of its age, it portrays wireless installations not unlike many amateur stations of the early days.

Originally, the film was on 28 mm (not 35 mm), a relatively rare film gauge which was used for early home movies and by educational Institutes.



"The sparks fly as the operator keys" — a frame from the film

The copy of the film presented to the Institute was photographically reduced from 28 mm to 16 mm by Peter Lord VK3NPL at Victorian Film Laboratories using the "Wetgate" technique. This provides enhancement of the image by reducing the effects of scratches on the original.

Both "old-timers" and newcomers alike will find interest in this new acquisition which will be available via the Institute Videotape Co-ordinator, John Ingham VK5KG.

## TRIAL AOCP EXAM

TRIAL AOCP EXAM — IN JULY,  
MULTIPLE CHOICE TYPE, CLUBS  
OR DIVISIONS. CONTACT ROY  
HARTKOPF VK3AOH, FOR DETAILS.

# WARC 1979 — WHY?

P. D. Williams VK3IZ  
R. J. Kelly VK3NT  
C/- Vicom

**The basic appeal of the Amateur Service has probably been impaired by changes in allocation over the years. Congestion in some parts of the world and a confirmed opposition to amateur activity in other parts have contributed to decreased operations and no doubt, some technical progress.**

Although there has been growth and innovation especially in Australia, it is apparent that further reductions or even small lead changes in a negative direction will lead to a loss of many of the vital functions performed by the amateur service.

Of course, an increase in the allocations will be accepted in the spirit in which it is given. Hopefully, they will be wisely used to enhance the status of the amateur service. We, at Vicom believe that the amateur service has, as a base for its continued existence, the following arguments:

## 1. TECHNOLOGICAL DEVELOPMENT

Amateur radio can provide a source of self training in electronic skills, limited only by the effort the individual is prepared to put into it. Despite proliferation of "black boxes", an understanding of the techniques used, plus a desire to implement these principles in experimentation must stimulate the development of communications technology.

## 2. ECONOMIC CONTRIBUTION

Although not particularly appropriate in the Australian context, the indirect extension of amateur radio and related equipment into professional consumer and government markets must advance to play a role in raising the general level of technological knowledge.

## 3. THE NATIONAL IMAGE

Especially on DX bands, the image of the country is portrayed through personal and unrehearsed dialogue. Unlike international broadcasts which consist of political discussions and news with strong editorial undertones, the amateur service can project abroad a strong and creditable image of the nation.

In supporting the WIA and Region III IARU, we at Vicom believe that the Amateur Radio Service clearly emerges as a national and international resource whose value to any nation is great. Any attempt to prune this resource must constitute a serious loss. We welcome and support the activities of the WIA and IARU Region III. We hope all amateurs share this philosophy. ■

# AMATEUR SATELLITES

Bob Arnold VK3ZBB

## OSCAR 7

Despite serious battery failure the satellite is still operating and can be heard in modes A and B. Operation through these modes are possible on occasions, but please use restricted power. I am re-instantiating the predictions.

## OSCAR 8

This satellite is now running four minutes earlier than the predictions given in previous editions. The predictions in this issue are appropriately corrected.

On some occasions AO8 has been

switched to mode J on Tuesday and Thursday in addition to the scheduled Wednesday, Saturday and Sunday. On some days both modes A and J are operable.

## RUSSIAN SERIES

Both RS1 and RS2 appear to be in difficulty due to battery failure or damage to solar cells. RS1 telemetry is very weak. It is doubtful if operation will be possible through either of these satellites. Unfortunately reliable detailed information is extremely difficult to obtain.

## VK4 DIVISION

Peter VK4PJ is now including a segment on amateur satellites in the weekly VK4 Divisional broadcast. I hope this idea will be considered in other Divisions where it is not already a part of the broadcast. ■

## ORBIT PREDICTIONS — JULY 1979

OSCAR 7				OSCAR 8				RUSSIAN RS1				
Orbit No.	Eph. GMT	Eph. +W	Orbit No.	Eph. GMT	Eph. +W	Orbit No.	Eph. GMT	Eph. +W	Orbit No.	Eph. GMT	Eph. +W	
1	21151	0021	69	6728	0041	56	2265	0155	276	2276	0029	248
2	21164	0115	83	6742	0046	57	2275	0020	285	2285	0005	251
3	21176	0115	86	6756	0051	58	2284	0021	284	2294	0005	254
4	21189	0109	81	6770	0057	60	2290	0029	287	2300	0014	257
5	21201	0026	66	6784	0102	61	2312	0014	282	2324	0019	259
6	21214	0103	80	6788	0107	63	2324	0019	288	2336	0023	282
7	21226	0062	64	6812	0112	64	2338	0023	282	2348	0029	265
8	21239	0056	78	6846	0117	65	2360	0033	287	2372	0037	270
9	21252	0151	92	6840	0122	67	2377	0042	273	2389	0047	276
10	21264	0050	78	6854	0126	68	2384	0042	273	2399	0050	276
11	21277	0144	90	6868	0133	69	2398	0047	276	2412	0052	278
12	21289	0044	75	6882	0138	70	2409	0047	276	2424	0055	281
13	21302	0138	88	6895	0009	48	2419	0052	278	2436	0058	284
14	21314	0037	74	6909	0005	47	2420	0058	281	2448	0101	284
15	21327	0132	87	6923	0010	48	2438	0101	284	2459	0115	288
16	21339	0031	72	6937	0015	50	2444	0108	288	2471	0110	289
17	21352	0126	86	6951	0021	51	2458	0110	289	2484	0115	292
18	21364	0024	70	6965	0026	52	2468	0115	292	2497	0120	285
19	21377	0119	84	6979	0031	54	2472	0125	297	2509	0129	300
20	21389	0018	88	6993	0036	55	2484	0134	303	2521	0134	303
21	21402	0112	82	7007	0041	56	2496	0139	306	2533	0143	308
22	21414	0012	67	7021	0046	58	2508	0134	303	2545	0147	308
23	21427	0106	81	7035	0052	59	2520	0139	306	2557	0143	308
24	21439	0005	56	7049	0057	60	2530	0143	308	2569	0148	311
25	21462	0100	79	7063	0102	62	2552	0148	311	2584	0153	314
26	21485	0154	83	7077	0107	63	2564	0153	314	2597	0158	316
27	21477	0053	78	7091	0112	64	2576	0158	316	2608	0002	269
28	21490	0147	81	7105	0117	66	2587	0002	269	2620	0011	284
29	21502	0047	78	7119	0123	67	2598	0007	282	2631	0011	284
30	21515	0141	80	7133	0126	68	2623	0016	287	2643	0016	287
31	21527	0040	75	7147	0133	70						



Oscar antennae at VK3ZBB — Bob Arnold.

# AROUND THE TRADE

## SKI-BAR BRACKET

Something new on the market from Barry Chivers, 19 Naomi Court, Bayswater, Vic. 3153, is the J & D cadmium plated ski-bar mounting bracket. Just the thing for Amateur or CB whips, and it saves one of those little 'problems' if you are



trying to make one up yourself from the junk box.

They are available for \$2.00 plus 50c postage.

Enquiries to Barry at the above address or phone (03) 729 3906 (A H)

## NEW MFJ ANTENNA NOISE BRIDGE

GFS Electronic Imports, Australian agents for MFJ Enterprises Mississipp., USA have just announced the release of the model MFJ-202 antenna noise bridge.

Housed in a compact 5 cm x 7.5 cm x 10.2 cm case, it offers the user the ability to read pure resistance of the unknown source over a range of 0 to 250 ohms and both inductive and capacitive reactance with a  $\pm 150$  pF capacitor. Frequency range is 1 to 100 MHz.

If you are reading this issue but are not a member of the WIA and if you would like to receive AR every month for your own personal use and future record —

Would you like to join the WIA now?

Please write to the

WIA,  
P.O. Box 150,  
Toorak, Vic. 3142  
for details of how to join.



Powered from an internal 9 volt battery the MFJ-202 makes solving antenna problems a breeze. For example Resonant frequency on the antenna can be determined, electrical half wave length of a transmission line calculated, input and output impedance of an RF amplifier may be found, baluns can be measured for impedance, velocity of transmission lines can be calculated.

With the addition of a Range expanding resistor the MFJ-202 may be used to make resistive measurements up to 5,000 ohms and inductive capacitive reactance measurement up to 2,200 ohms.

Price of the MFJ-202 is \$78. For more information contact GFS Electronic Imports, 15 McKeon Road, Mitcham, Vic 3132 Ph: (03) 673 3838.

## BWD APPOINTS SA DISTRIBUTOR

BWD Electronics Pty. Ltd., the manufacturer in Australia of precision instruments, announces that Protronics Pty. Ltd. is their sole distributor in South Australia and the Northern Territory.

The announcement was made during a recent visit to BWD Electronics by Bob Crabbe, Managing Director of Protronics. Mr. Crabbe, on the left of



the photograph, is seen with Bruce Owen Managing Director and Ron West, Marketing Manager for BWD Electronics at the signing of the agreement. Ron West said Protronics' five sales engineers and comprehensive service facilities would make a significant contribution to the already successful distribution of BWD products in Australia and would further strengthen local customer sales and service facilities.

A larger order has been placed by Protronics for items from the wide range of BWD products, in particular for the Powerscope, Oscilloscopes, Signal and Waveform Generators, Power Supplies and "Mini-Log" (the teacher's friend).

Protronics address is 174-180 Wright Street Adelaide, SA 5000 Phone (08) 212 3111

## VICOM SUPPORTS WARC 1979

As a contribution to the effort in preparing and maintaining a presence at the coming World Administrative Radio Conference, VICOM have donated \$1,000 towards the Wireless Institute's funding for the project.

A spokesman for VICOM said that the Conference will have a profound effect on the long-term interests of both the Amateur fraternity and the viability of the commercial interests throughout the world!



Russell Kelly VK3NT (Vicom Commercial Director) signs a cheque for presentation to David Wardlaw VK3ADW, WIA Federal President. Peter Williams VK3IZ (Vicom Technical Director) looks on.

# VHF-UHF

## An expanding world

Eric Jamieson, VK5LP

### AMATEUR RADIO BEACONS

Freq.	Call Sign	Location
50.001	WABMHT	San Diego
50.004	PY1IRO	Brazil $\ddagger$
50.010	HL9TG	Seoul *
50.023	HN2PR	Haiti
50.026	SV2R	Jamaica
50.030	WA1ENK	Maine *
50.036	K4FV	California *
50.050	W6L	South Africa *
50.075	HV3/4	Colombia **
50.080	VE1S/X	New Brunswick
50.091	WA6JRA	Los Angeles *
50.092	WTKWA	Oregon *
50.101	FO8DR	Tehsil *
50.104	KH5QZI	Pearl Harbour
50.110	HL3WI	Seoul *
50.110	KQ6JDX	Guam *
50.110	JD1YAA	Marcus Island *
50.110	KH6KH	Marshall Islands *
50.144	Z8BLN	South Africa *
50.500	W4CY	Cyprus
51.000	W9VBB	New Caledonia
52.050	JD1YAA	Marcus Island *
52.100	VK0BC	Casey Base $\ddagger$
52.200	VK8VH	Darwin
52.300	VK6RTV	Perth
52.360	VK8RTW	Kalgoorlie
52.400	VK8RTW	Wonthaggi
52.480	VK2WVH	Sydney
52.500	SD2AA	Fiji
52.600	JA2IYQ	Nagoya
52.800	ZL2VHW	Palmerton North
52.910	ZL2MHP	Mt. Climie
52.900	VK8RTW	Albany
53.000	VK8RTT	Camawan $\ddagger$
53.000	VK5VF	Mt. Lofly
53.100	VK0MA	Mawson ***
144.010	VK2WVH	Sydney
144.400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Canberra
144.500	VK8RTW	Albany
144.700	VK3RTQ	Vermont
144.900	VK7RTV	Mt. Lofly
144.900	VK7RTX	Ulverstone
145.100	ZL1VHW	Auckland
145.150	ZL1VHW	Wellington
145.200	ZL2MHP	Wellington
145.230	ZL2VHW	Palmerton North
145.300	ZL3NHF	Christchurch
145.400	ZL4VHF	Dunedin
145.400	VK4RRB	Brisbane
432.450	VK3RPX	Bellarat
432.475	VK7RTW	Ulverstone

\* Denotes these beacons operate on an attended basis, i.e. when the operator is in the shack, or available, and the frequencies may vary according to the whim of the operator or how accurately he sets the dial, e.g. FO8DR was heard by me on 26-70 or 50-105, not 50-101 as listed otherwise. These stations are useful and are to be noted. There may be some others which should also be noted, thus, if you see some please let me know.

\*\* This station appears to be a repeater, with an output of 50-75 and input of 50-125 F.M. Probably more useful as an indicator for the USA.

\*\*\* VK0MA has never or not been heard for a very long time. Operation is therefore doubtful. I will let it for another couple of months, if no one disagrees then it can be deleted.

† Two new beacons VK0BC is operating from Casey Base in the Antarctic on 52-100 with

auto CW ident, running 300 mW (!) to a 6 element beam at 20 ft. The operator has no receiving equipment. See general notes for further information on this one. Advice has just come to hand that VK6RTT, the Camaroon beacon on 52-900, has been reactivated and will be running continuously. That's good news.

†† PY1IRO is a new beacon, news of which comes via HL9TG.

If you will the full list you will see a number of new beacons appearing under the attended operation category, namely HSTG, K4FV, ZS6LN, JD1YAA, all of which could be very useful.

### 6X METRES

There is not so much going on at the moment as it is difficult to know where to start and then when to stop! The distances being worked by individual stations are being exceeded all the time, currently it appears signals have been worked halfway across the world — you can't go much further than that — beyond that it would be difficult to say whether or not you were receiving a station the other way round! I think the easiest way to give you the information is to start with what David VK5KK has labelled and that can be added to as required. No matter what I include at the moment will not be the complete story, so much has been going on that hasn't really been reported, or it is heard as hearsay, which if I print I can be accused of lacking credibility, so if you have done something which should have been noted and you don't raise a mention, it is because you or anyone else has told me I get some off the air, but I can't be in the shack all the time. I do have to keep the work up to date, sometimes eat, and keep the peace with the XYL who is very understanding to say the least! And I still think time to shower!

From David VK5KK "24-3 to 27-3 good JA conditions to all VK call areas 1 to 9. 26-3 HL9TG to VK5OT at 0245Z, marginal CW contact. Then on VK5OT and VK5KZJ, VK5ZMO, VK5SSV, VK5SAQ, VK5LP, VK4DQD and to VK2ZBY three times, signals 5 to 9+ on 5000 watts on peaks. Also HL9TG worked VK5K 5 x 9+ on peaks. Also HL9TG worked VK5K 5 x 9+ on peaks. Then the first widely available HL8 opening to lower power stations. The following weeks saw the same thing, repeated over and over again. Most openings to VK2, 4, 6, 8, and 10, although several to VK3 and one excellent opening to VK7 on 3-4, and VK1 same day. HL9TG worked a total of 7% (7) VK7s, thus he has now qualified for WAS in VK. The only explanation for the sudden upsurge in HL to VK contacts is perhaps the recent interest shown by both HL9 stations towards VK more often. Conditions have certainly been good enough before.

Also VK5 has become more widely available to VK3, 2, 3, 4, 5, 6 and 8, mainly with Joe KG6DX, but also KG6JKS, KG6UJP and KG6JDK. Openings fall into various time slots from 2245Z to 1530Z in VK5 at least. Some early morning openings have great filter KG6DX runs FT101 to FT4 550B to Tempo 642 with about 500 watts to a wide spaced 8 element beam.

"30-3 HL9TG and HL9TG to 5 x 9 at 0240Z to most areas. Also JAs for 4 hours. 31-3 again to HL9TG plus JA, KG6, KH6 and KH8. From 0900Z KH8JA to VK4, 5 and 8. AI worked 10 VK5s, so what an opening. Signals to 5 x 9+ on SSB. KH8NS from 1100Z to VK5ZMO, VK5KXK and VK5RD plus VK4s from Brisbane up. Frequency used, well 52.036 still seems to be popular. I don't think anybody (nearly) worries about this kind of usage of 0501-4 April Fool's Day didn't yield anything before midday. During daytime KG6 and HL9 worked again from 5 and up. Large night opening to JA from 1000 to 1300Z. Band open to VK2, 3, 4, 5 and 8, with the times 1000 to 1300 being the borderline for 5 x 9 signals! At least to VK5 anyway. 24-3: Another JA opened from 0000 to 0600Z, continuous to most stations. 25-3: 5 to 9, 6, 8, 10, 12, 14, 16, 18. Also notable contact VK5OT to KH8NS. Claimed to be the first VK3-KH8 contact, but KH8 had worked to VK3 earlier in the year. Also that night some excellent backscatter contacts between VK2, VK5 and VK8, including VK5KK to VK6GB in Darwin, distance 1600 miles.

"On GMT day 2-4 some interesting easterly bearing DX at 2320Z VK5OT to XE1GE peaking 579 on CW. At 2330Z also VK5KK to XE1GE 559

CW and 5 x 7 SSB. Distance 8756 miles to Cuernavaca, which is 50 miles south of Mexico City. Geoff XE1GE runs a Heath HR-50 to 2995 final. On receive he uses a crystal controlled converter to a Collins 75A2. A 6 element yagi at 60 feet. On the previously recorded XE1GE-VK5OT contact XE1FU heard VK5ZT in 1978 which would now still be the VK 5 station record on amateur bands. XE1GE also heard by VK2GYX at least, and VK5ZMO and VK5ARZ 4-4. More night JA to HL9TG, 5 x 9 at 0155Z. GMT day 4-4 another excellent Central American contact, this time between VK4RQD and KZ5Nv at 2330Z. KZ5Nv, Phil, is located in the Panama Canal and had been heard the previous month by VK6GB. Distance about 9400 miles, so things really stretching out. Same day to VK lower stations. KH8NS 0128 to 0300Z, HL9TG 0100 to 0120Z, and KG6DX from 0000 to 0130Z. JA8 from 0100Z to 0120Z, and KG6DX from 0000Z to VK5 at least. Later JA8s from 0205 to 1100Z with 7 areas worked on FM on 52-1530 and above from VK5K. Also small KH8 opening on 5+ to VK4, 5, etc. Late at night from 1300Z. Also VK6V worked on backscatter on 6-4 at 0338Z. 7-4. HL9TG worked at 0500Z JAs from 1310 to 1410Z. KG6DX from 1350 to 1430Z with usual 5 x 9 signals.

"Back towards the east on 8-4 VK4RQD stretches that reach to about the 9300 mark again when he worked W4YVS and WB4G on SSB and WB4VVS in Orlando, Florida. He was heard there on 0402 and 0402Z. WB4VVS in Orlando, Florida, was also heard. There is also a DX station, namely VK4ZBJ worked one of the above stations. Carefully probing to be the centre of a set of DX activity on six with a so T2N/A being heard by VK4RQD on 10-4 around 2202Z. And not forgetting 7-4 when W4XJX worked a total of 26 VK stations! But from VK1, 2, 3 and 4 VK1FT worked Gary WB4VJ with 10 watts, 5 x 9. Close to this is way only two VK5 contacts, using 400 watts at that, but the fifth call that border-line again or someone spoofs it will be up before it gets here! Signals to 5 x 9+ and beat VK5V opening, probably because it occurred on a weekend. Around 0000 to 0100Z 4 WB6NMT San Diego amongst the DX 10-4+ KH8 from 0750Z to 0810Z to VK3, VK5 KH8QI peaked on 52-6500 for comp elec. Signals heard by VK3MHN, VK3AU1 and VK3MHN from 0750Z to 0810Z to VK5. KH8QI was VK5ZMO and VK5KK. Also XE1GE up again with 5+ signals heard on 8-4 on 50.000 to 559 from 2208Z to 0258Z XE1GE worked by VK3AOR at 2208Z split frequency on CW on GMT day 5-4. Also 0202Z in VK5KK split 59Z. CW XE1GE also heard by VK2BA, VK2GCL at least, and VK5LP. First signals from XE1GE to 2210Z (And that's easy). Closest 2320Z. Later that day some Es to VK4RQD from VK5 around 0700Z.

"On 13-4 at 0002Z W4YVS heard by VK5ZMO VK5KK on 50.103 ending at 0042Z. He was calling CG. Then at 0402 W4VVS came through and was worked from 0402 to 0442Z. 8 x 9 on SSB to VK5KK. Also KH8 from 0442Z to 0500Z on working a VK4 by VK5ZMO. VK3AU1 from 0442Z to 0500Z on working a VK4 by VK5ZMO. VK5KK. Also XE1GE up again with 5+ signals heard on 8-4 on 52 MHz was W4YVS on CW at 0047Z. For next 10 minutes some metered extended peaks from W4YVS but no consistent signals W4VVS. Carroll is located near Port Richey near Tampa, Florida, runs 600 watts to 8 element KH8 at 90 feet. Distance 9850 miles VK5ATH as hearing pings of W4YVS later. On 13-4 VP1MT to 0447Z and 0500Z to 0630 to 0102Z VK5KK to VP1MT at 0447Z, 5 x 9 SSB. Distance 5000 miles. Also heard by VK5ZMO and VK5ZBZ from 0102Z. Some unconfirmed reports of hearings from VK2 for 13-4 and GMT day 15-4 when Zs heard VP1V around 2200Z VP1MT located a Corolla, Belize formerly British Honduras. Station was a expedition and disbanded several days ago. Operator Bob had 79 watts to a 3 element yagi. Very popular station on any band, especially six metres. Also later to 0130Z KG6DX on 50 MHz with very fluctuating a 59 GHz HBT leading to VK5OT, 5 x 9 on 50.010 at 0400Z, although no signals to VK3I GMT day 13-4. KG6DX 5 x 9+ to VK2 4, 5 and 8 from 0245 to 0300Z and VK5LP 5 x 9 Es from 0245 to 0300Z. Also ZS6LN copying KH8DII 5 x 8 from 0645 to 0731Z. More on that anon. 16-4 W4YVS on 52.010 was heard via a ping from 0110 to 0120Z by VK5KK, VK5LP, VK5RQ

plus VK2 Later Es between VK3 and VK2 and VK4 from 1020 to 1100Z and after everyone had gone to bed John VK5ZBU worked KGBDX for a good 30 minutes from 1400Z at 5 x 9+, and VK3AKN but not other contacts.

#### SIX METRES CONTINUES

'On 17-18 VK8WV worked W7LYI and AA6S from 0355Z 5 x 9, also believe VK8GB worked also. Previously Graham had worked into W5. Band opened into VK4 twice with the usual early 2300Z time and repeating from 0200Z onwards. The later opening was better. This pattern repeats itself over the next few days. At 0610Z (1) Y9UKW worked KGBDX and K6VFP on SSB and CW. Ken also heard K6MYC (Mike Stahl of KLM) 5W 5M but no contact. During previous days Y9VPP had been copy. State-side many times but unfortunately Ken is having trouble with equipment during the wet season. Ply wood panels cannot make antenna work. Ply wood is really humid climates. However, communications, Ken, and yet another country for the only permanent 6 metre operator on Y8. Back home... 'A' from 0845 to 1130Z on 17-4. On 18-4 not much activity on 6 from here but you should have heard 'D' on 20845 kHz. Once VK3 was pointing the bone (itaray) at a VK5 for running a key on s2.031. KHZ. Later on 18-4 from 1142 to 1510Z 5 x 8 from all districts except 8. Also K4HBF (Okinawa) to VK5RQ, VK5SKK, VK5AVQ, VK5VZ2Z, VK5ZBU VK5SL and VK5RQ to HIWV. Times from 1130 to 1240Z. Also VK5KK to JRSV5M, Okinawa at 1205Z. K4HBF runs a barefoot T5000 and peaked to S9. Band also open between JA and VK2 and VK3 to 1202Z. From 1305 to 1400Z ABQV/MW was able to VK5SKK, VK5VZ2Z and VK5RQ, although barely readable most of the time. Frequency 52.032. Also Y9VCP copied same station slightly stronger but also didn't make contact. ASKO is on a Liberian oil tanker and was working JAs at 5 x 9 from the Java sea area. The tanker was heading towards Japan. KGBDX worked said station on 20-4. Not much hope VK working such a station with all those JAs as strong 20-4. JAs (lower areas) 5 x 8+ from 0800 to 0800Z to VK2 3, 5, etc.

'On 23-4 K6BEI from 2320 to 0310Z, peaking S9 and never disappearing for more than 5 minutes! From 0025Z KGBDX, Joe to VK2, 3, 5, etc, peak 89. Around 0140Z KH6IA to VK5K, VK5ZBU and VK5SV, peaking 5 x 7. KHB7G 5 x 6 to VK3 and 5 a pword 0300Z. Also 'A' from 0300 to 0400Z to 8 x 7. Next day 24-4 K6BEI again from 2425Z to 09 until 0300Z. At 2325Z KH6NS to VK5SV, VK5SKK, VK5AOR, VK5GT, VK5A3L VK5ATN and VK5AMN. 5 grads 5 x 7 in Adelside and averaging 3 to 4 in VK3. Also from 0002Z KGBDX worked VK2 3, 4, etc, to 6 x 7 8W, VK3 and 5 x 4 in VK2. From 0245 to 0335Z KH6BEI heard in VK2, 3, 4 and 5. etc.'

#### MORE ON SIX METRES

David VK5SKK continues: 'More generally the DX so far this year has outstripped all predictions, at least those based on the 1957-59 period. For those able to pick patterns in DX there has certainly been quite a bit to follow, e.g. take the openings like the following: VK4, VK4 and VK2 to KZ5, VK3 and VK5 to VP1, XE1; VK4 and VK5 to W4, VK4 to W5, etc. etc.'

There is no coincidence that these, generally took an easterly bearing. They almost all occurred between 1-4 and 14-4. XE1GE appeared to VK2, 3 and 5 many times in this period between 2200Z and 0000Z. However, the other contacts to W4, W5, KZ5 and VP1 all occurred between 0000Z and 0220Z ZL to W6 has occurred as early as 1800Z and as late as 0000Z. And how about 27 day cycles? The only VK3 to W6 openings and probably the best W6 openings, occurred 12-3 and 7-4 27 days apart! The W6 openings started in early March with afternoon openings and only after 18-4 did the same afternoon conditions return to VK4. By then the peak of conditions for the lower States had well been passed. Also VK6GDX and VK6ZCC, and Perth stations to a lesser extent, have been copying KGBDX almost 6 days out of 7 from 1-4 to 20-4. Path is approximately equivalent to VK2-W6 yet seems to be slightly more consistent despite lack of contacts. Most noted calls during W6 openings are W1KTF, VK2BA, VK2ASZ, VK2BKO, VK2BZY, VK2Z2V, VK4DQ, VK4HD, VK4PU, VK4Z7K etc. And finally what about the latter on KGB signals from 2200 to 0130Z? Any

answer on this one as it is very consistent and regardless of signal strength, i.e. can be S1 or S9. Has it got anything to do with the fact that contacts are directly below the Magnetic Equator? In fact, why not? It is open to other regardless of general considerations? What we have, KGB throughout May or even later? At present KGB is more consistent and predictable than JA to VK3 and VK2. KGB. Although with high sunspot counts the TE does deteriorate, that keeps the JAs quiet here at least. By the way, the Ritter has a fast rate, like 20 to 40 Hz, although not as bad as auroral (or those lucky enough to have had it) propagation. It is quite noticeable and a lot faster than TEP 2 Butler. Is it a morning 'hangover' form associated with the previous night's TEP? Some feedback from VK4 and VK8 stations on the intensity of TEP the night before may help. Some of the above may be a bit doubtful but is presented to stir some thought towards this unusual little type of opening.

#### OVERSEAS AND OTHER DX WE MISS

'Amongst other outstanding overseas contacts comes Z56 to KHB. On 16-4 from 0645 to 0841Z Z56LN worked KH6HI, KH6NS, KH6IAA and KH6JSI. Greatest distance being between KH6IAA and Z56LN, about 11,000 miles, is not far short of the present world record of 12,004 miles. VK record is now about 9890 miles, although the VK6s could scoop the pool by working to VP3, Bermude. Quite possible, as it is only 1200 miles out from W4. Bearing from KHB was 240°-T, which is down this way. In fact, most times KHB tried to Z56, the VK8 beacon was audible in KHB and vice versa. Also on the same day that Z56LN first heard KH6E0I, VK6B09 heard Z56LN on 50 MHz. Our 2 MHz difference doesn't help at these times! But is VK the stopover for such contacts, or does it fly over us, say, 100 miles up?'

'3D2CM has been worked from W4, W5 and W6. ZK1AA is now active with a Clegg (Venus) and can operate on 50, 51 or 52 MHz. He has worked KH6NS Antennas KLM 8 element. Possibility of VRE (Piccalin Is.) and C60A (Easter Is.) being activated on 6 metres although a difficult path for VK. Some state news (or it will be), 9N1BNMK (actually JA8BMR), Nepal, will be active on 50/110 and 52/045 from 2-5 to 8-5. However, he has a licence to operate for the next 12 months so he may be worked during one of the later visits to Nepal. Also YB0X has obtained permission to work 50/105 and 52/09 from 28-4 to 6-5. Only information to be exchanged are RST reports, one of the previous because 6 metres is not allocated to Indonesian operators. Permission was obtained on the understanding it is simply a propagation test. QSL to JA1UT. Watch out for M3/4 repeater in Columbia. Often heard in USA and provides indicator for South American openings to W5. Input 50.125 and output 50.075 MHz Mode FM. And locally, who is YV1R, working on SSTV on 52.015 MHz? Absolutely no complaints about the frequency but I wish I had a SSTV monitor! What about RTTY 100? Wonder what happens to the picture when TEP 2 Ritter sets in?'

Again many thanks, David, for the complete coverage you have given of the 6 metre scene. Does not leave a lot for me to fill in! The reason such good coverage of activity from VK is mainly a fairly obvious one. Well, here, but, more importantly, David is the only one who takes the time to write to me with such complete information, and he doesn't have to be prodded either, and that's worth a lot. Being a dedicated VHF operator and with a great interest in propagation, it is inevitable he will have a lot of information at his fingertips, but most will agree his notes are pretty well all embracing and shows what is happening interstate and elsewhere.

In writing the above paragraph I would not want any readers to feel the letters they send to me are not acceptable, every bit of information I receive is studied and used where possible, and I am grateful for the continuing information which comes into my office, but, we are sadly lacking information from VK4 and VK7. Some comes from Tony VK5BVR, covering that end, occasional writers send news from VK3 and VK2, nothing these days from VK8, so that's where everybody fits in.

#### OTHER SIX METRE NEWS

ZL seems to enjoy contacts to areas not heard by VK very often. I refer to working HI1 Dominican

Republic early April, and at that time 6 W States

Z56LN usually runs his attended beacon on 50.059 but during the KHB contacts was on 50.144. Z53TR usually transmits on 50.100. On 20-4 John VK5ZBJ and Mark VK5AVQ heard the VE1SIX beacon on 50.068 or C8572 for a short period, not strong. 28-4 F6DR beacon to S8 on 50.105 at 2242Z lasting until 2300Z. Steve VK5GOT calling to Y88 from 12-5 until late June, will be operating as Y88OT on 6 metres, plus 10 and 15 metres we believe. On 26-4 VK5GBE in Darwin worked H44DX. Solomon 1, 1222, 5 x 8 and again on 26-4. Advased also there is another H44 station operating VK5GBG has now worked 17 countries on six metres. On 25-4 KH6NE worked VK5VF for 7W hours. 28-4 Commercial CW station a going DJ2 50.175 at 2347Z to S5 to S9, may be in PIippines... same day HLSTG beacon on 50.010 0445Z for 1½ hours. 29-4 VK5KK and VK5LP hearing W6X, 50.020 0030 to 0200Z S1-2, VK5SKL tried for a long time to work split from S2 0200 without success, liaising with 8885 to Gary, once again the 2 MHz disadvantage shows up well... W5KJ worked Joe VK7UQ on 28-4 S5 x 9.

26-4-7. I am sure this date needs special mention. It was probably one of the outstanding days of the March-April aquinox here are a few of the things which happened as we saw them from VK5. Firstly, F6DR heard 2312Z at S3, later to S9 2313Z very strong backscatter signal to S9. VK5OT and VK5ADP 2326Z worked KGBDX 5 x 6 2329Z worked VK5GB Alce Springs 5 x 5 2352Z worked VK2H 5 x 7 0002Z worked KHA 5 x 6 0012Z worked VK2BQ 5 x 5. Then I had to go to the air tanks. But those still at home worked plenty of JAs starting with JA1 HL9TG worked by John VK5ZBU at 0447Z on backscatter, whilst HL9TG was becoming over China still hearing China. Gary worked VK2, 3, 4, 5, 6, 7 and 8. KASEDI, KG6EJI, KG6BJK, etc. During 28-4 VK2BQJ is reported as working over 200 JAs. From VK5 at various times all the relevant beacons of the Pacific area were audits JA1TU worked ZK1AA and F6DR at 2302Z 5 x 9+, also DU1DM on 50.105, plus VK4, 5, 6 and 8, and VQ9KK on 50.030. On that day Kazu heard 15 contacts on 6 metres! Still continuing the saga of 26-4 as mentioned earlier, Graham VK5GB and Brian VK5VY worked H44DX. JD1YVA Marcus is, also, heard F6DR and YB9P heard W stations but unable to contact. KH6E0I very strong. Later at night from 1302Z many strong VKs were worked VK5 and other areas, also contacts JA1, 2, 3, 4, 5, 6, 7 and 8, signals to 5 x 9. The station worked 1425Z. So it was a great day, no doubt many other VK areas did just as well, so the day would help to put the VK position even more firmly on the map. Though again our 2 MHz discrepancy from the remainder of the workable areas preclude the contacts with the more elusive stations which are only there for a few minutes. If we could only be permitted to go down and call them on their frequency with a view to either working split frequency or requesting them to look on 50 MHz, or even having a brief exchange of RST reports on 50 MHz would help. Surely no harm could be done if we were granted this concession?

#### NEWS FROM VK5

Tony VK5BVR passes on information re activity in the West, saying first of all that Es activity to the eastern States was rather poor this year. Freq JA openings occurred 18-2, then 10-3, 30-32W saw the first of the good openings to Japan with JA1, 2, 3, 4, 7, 9 and 0 from 0450 to 0532Z. 29 stations worked 3-3, 17 JAs worked 1-4, JA1, 2, 3, 4, 5, 6, 7 and 0 plus HL9TG from 0531 to 0741Z, 29 stations. JAs continued on 2-4, 5-6 plus HL9TG On 6-4 KGBDX on S2 0200 at 0108Z for what was believed to be the first time to south of Western Australia. 7-4 KGBDX beacon on S5 1010 at 0145Z S7 Also heard in Busselton at S5 by VK5AM and others. 8-4 VK5WQD, VK5ZKC, VK5UJ, VK5KZ, VK5QD and others worked KGBDX about 0200Z from Perth, signals to S5. KH6E0I beacon also S8 at same time JA8, 9, 11-4, 12-4 also, plus KGBDX KGBJJKS for 2 hours around 0200Z 13-4 KH6E0I beacon plus JA.

On 14-4 Don VK6HGI heard and recorded the KHB beacon from 0155 to 0235Z, peaking S9. Unable to get KHB stations on via 28865 net W6XJI suggested checking the tape, and another CW statan

was noted under the beacon, being W6XJ running his keyer 1 kHz removed! This the first recorded copy of a W station on six metres in VK8 Russian station on beamed heard on 52.000 0215 testing at 59°. On 15-4 KHM beacon again into Perth 0133 to 0402, and during this the time Wayne VK66WD heard and copied W6XJ on 50.005 at 519. Also recorded by Tony VK8BV in Northam 2 minutes earlier at 0133Z. Same time open to KGB ... Well at least we know the VK8 boys are sharing in the six metre spots.

#### NEWS FROM VK3

GT VK3AUI sends two letters with a coverage of activity in the Box Hill suburban area of Melbourne. He commands the action of Gary VK3KJ in co-ordinating the 26686 kHz net for six metre operators, which has proved to be immensely useful for liaison, for station openings and no doubt done much to overcome the problems associated with our 1 MHz difference when the US stations hear the VK and ZL TV stations. Such liaison first helped to ensure the success of the contacts between W and VK3 on 12-3, when W6XJ, N6CT, N6AZ, W8BNMT and AA6S were contacted by VK3D\*, VK3AKM, VK3AKK, VK3AOR, VK3AUI, VK3AJO, VK3Z2Z and others. Same day openings to JA and IJAE at night to K6DXK.

On 18-3 via 28885 were reports of the W6 opening to VK8 VK9 and ZL, but nothing heard in Melbourne. W6XJ also worked VK3KJ at 2226Z, ZL1B1Q on Kermadec Is., and several other ZL stations. Four contacts on six in a short space of time. Other Melbourne openings to JA were on 28-3, 30-3 31-3. On 3-4 KHM, JA and N6LW1 & 4 worked KHM AA at 0003Z, 10-4 JA, on 9-4 at 0005Z whilst tuning on 50 MHz. G6L heard an FM signal on 50.125, which could have been the Columbian repeater HK3J4. Beam heading was right.

G6 reports it a pretty hard going in Melbourne due to the rubbish from Ch 6, but a vertically polarized antenna of 4 elements has been giving him some success, and hopefully the removal of Ch. 6 later will see VK3 being heard much more regularly. Thanks for writing G6L.

#### THREE JAPAN

Kun UAZTTO writes to say his 8 metre equipment consists of FT101R FR101 and FTV850, using two 6165 valves to give about 100 watts input. 7 elements up to 17m. Currently he is trying a T9606, beam binger for 100 watts input. He is Editor of 6 metres column in "The Mobile Ham", a monthly magazine. He is 24 years of age, and he lives in Hamamatsu City, with a population of over half a million people! Included with the letter were details of the Indonesian DXpedition with the call sign YB0X for 28-4 to 8-5, any reports of which will be given next month. JA1JLT will handle the QSL info, address being Ichio Hayashi, 4-26-2 Nishigotanda, Shinagawa, Tokyo, 141 Japan.

#### EME HAPPENINGS

For a change of subject, Ray VK3ATN advises during the April EME session and using his 16 foot dish he heard VE7BZG, ZE5JJ, a JA6, JA1 and two W stations which were not identified. At the same time Chris VK5MHC using his 20 foot dish contacted VE7BZG, ZE5JJ, SM5H and a JA6. All these hearings and contacts were on 432 MHz. Ray is now working to put his 28 foot dish on Meridian Transit position which will allow him to see the moon and time in and within the position. The dish, Radio Astronomical dish, is 28 foot diameter. ZL2BCC and ZL3AAD are already on 432 MHz EME, and a K6 is working on a 20 foot dish. Ray has also obtained a new type GAS FET for his receiver front end which should further aid his reception of the weak signals.

#### PORT LINCOLN NEWS

Peter VK5ZCT writes from Port Lincoln at the lower end of Eyre Peninsula to say that amateur radio is forging ahead there. They have formed the Lower Eyre Peninsula Radio Club, which now has a membership of 30. Licensed members include Jack VK5EJ, Eric VK5EN, Jim VK5ZSM, Greg VK5ZTR, Peter VK5ZCT, plus about 6 Novice calls, with numbers in all categories likely to increase in the next 12 months. Peter's QTH is 30m above sea level, but if conditions look good on 2 metres he goes to the top of Winters Hill overlooking Pt Lincoln, which is 23m a.s.l and a clear take

off in all directions. Presently equipment only allows repeater operation but is aiming towards two metres SSB later this year.

A condensed version of Peter's operating at peak reception times is as follows 16-2, 2245 to 2300Z worked VK7ZCY, VK7ZFP and VK7ZIA via Ch. 8 VK7RAA. Swinging his beam to the west at 2310Z worked VK6GK and VK6JJ through the Bunbury repeater Ch. 6R6BY 2320Z worked VK6JJ on Ch. 8 6RAW. At 2330Z worked the same station on Ch. 40 noise free until 2350Z. On 11-2 at 0738Z worked through Ch. 8 7RAA again from his home. Shifting to Winters Hill at 1652Z worked VK7ZFP Ch. 3 7RAW, 1000Z VK7ZCG and VK3SSS via Ch. 8 7RAA. 1105Z VK7RRA and VK7ZIA via Ch. 8 7RAW, 1110Z VK5BVL near Warrnambool via Ch. 40, also VK3AUR at Hill Geelong Ch. 10 1200Z VK3YH via Ch. 4 Bendigo 5 x 9 + 30 dB 1310Z VK5TE Bunbury Ch. 8, 1302Z VK6ZBT and VK6JJ Ch. 8 Wepin repeater. 1355Z to 1402Z worked nine VK5As through Ch. 6 Bunbury. At 1445Z triggered Ch. 4 which could have been Ch. 4 VK6RAH at Perth.

That shows what can be done if you are keen. And as it appears, all this type of activity is leading Peter into getting on to SSB which could well increase his coverage on the band. Good luck with the project.

#### WHAT CAN BE DONE TO HELP?

As mentioned at the start of these notes VK5KK at Casey Base in the Antarctic has installed a manned beacon on 52.1000 beaming towards Australia. The equipment runs 300 mW output, and no receiver is available, so for the present no contacts can be made other than perhaps crossband. The active VK5Cs on six metres, and they don't really number that many, have been discussing the situation and have agreed to do something to ensure possible two-way contacts with Casey Base. It is proposed obtaining a secondhand IC502 which will be the SSB originating source and the receiver, and a PA to provide about 25 to 30 watts of SSB output. David VK5KK has already offered a solid state PA which runs 25 watts out from 12 volts.

It is therefore proposed we make up a unit which is able to be taken anywhere for that matter in the absence of other six metre gear, and used to provide DX contacts. If necessary a 4 element beam would be available with the package. In the present instance it would go to Casey Base, but this cannot be arranged until next October when first physical contact is possible with Casey due to the long winter there.

In the meantime, it seems to have been generally agreed for the moment, that the VK5LP should promote the idea, and invite anyone interested who would like to make a financial or equipment contribution to contact me (phone (08) 3891204) or at Forreson, SA 5233, stating what they are prepared to contribute, and if the idea reaches fulfillment then we will be quickly asking you to send your donation to the appropriate address. The idea should be of prime importance to VK5 and VK7, and VK7, being the nearest to the base, but there is no reason why VK5 should not be of total interest. I cannot see the demand from that area stopping at State borders. October will soon come around, so let us not tarry, let the project get under way now, and you will ensure this if you can help with contributions.

A similar arrangement was undertaken when Steve VK5OT ensured N44 was put on the map. They have managed an IC502 above, mainly because the whole package could be run off 12 volts, but I guess we would not be looking down the mouth at an FTV850, etc., but these require more backup equipment and complicates the whole programme.

#### FROM OTHER SOURCES

The WA VHF Group News Bulletin mentions several items of interest.

First: The Albany Beacon was descended upon by VK6HK, VK6HK, VK6KV and VK6EAD and now VK6FTW has a new 5 element beam pointed at Perth, being fed through a directional coupler donated by VK6ZFY Roger VK6NRR reported a 20 dB signal increase from Kaitainga where he was monitoring field strength. Field strength at Ledge Point decreased 3 dB and the beacon was heard in Adelaide after the mod. was done, the beam towards Perth is a 6 element and the RF to the

Second: Diego Garcia VK0BK in the Indian Ocean is now on 5 metres. And Russ Z56LN and VK8XJ are now operating a 50 050 beacon, 80 watts into an 8 element yag. From 0400 to 0700Z the beam is pointed to JA. From 0700 to 1000Z the beam is pointed at VK. During beacon times there will be activity on 10 and 14. The May MUF to Northern Australia is expected to go to 48 MHz. For those looking for openings there is a Rhodesian TV station on EZ, i.e. 48250 MHz.

Third: 5B4AZ in Cyprus and ZB2BL in Gibraltar both have 6 metre permits.

Fourth: The bad news. Concern is being expressed about the competing priorities on Ch. 5A despite the promises of the Minister for Post and Telecommunications at Leeman, on the coast 20 km WSW from Elandsbaai, there is another Ch. 5A, which is already causing widespread interference to 2 metres. So much for the word of those in authority.

#### PINNACLE

I note with interest a paragraph in "QST" that during March there was a successful two-way contact on six metres between Z56LN in South Africa and 5B4AZ in Cyprus, the latter running 70 kW output. That's certainly getting miles per watt!

There's not much to report on 2 metre activity — possibly very few people are on that band at the moment, six metres being all the rage. As the winter months come we should see some more contacts there.

And now the thought for the month 'Opportunity knocks only once, but temptation leans on the doorbell.'

7. The Voice in the Hills.

## STOP PRESS

#### 2m FM DX TO JAPAN

On 20th April at 1333Z a husband and wife team VK8HW and VK8EW from Darwin, worked JRL6HZ on 145.19 FM. Signals were 5 x 9 each way. This could be a new record and a chapter first for a YL to work out of Australia on VHF. Further details will be published when they come to hand.

YB0X worked VK5KK and VK3DT on 30th April between 0100 and 0200Z. CV and SSB signals exchanged.

E12W in Dublin has a licence for 50 MHz and is getting on the air.

## AWARDS

### COLUMN

Bill Verrall VK5WV

7 Lise Ave. Finders Park, SA

#### ENDEAVOUR AWARD

The Royal Naval Amateur Radio Society has great pleasure in announcing a third award called the Endeavour Award for contacting Society Members residing in Australia. The title of the award links the Royal Navy with Australia.

VK RNARS Lists are available from the custodian or the Australian Organiser. Or use the general RNARS List from G3H2-L-QTR

#### RULES OF THE ENDEAVOUR AWARD

1. The name of the award shall be the ENDEAVOUR AWARD, and shall be open to all radio amateurs.

2. Applicants must establish two-way amateur communications with RNARS Members residing in Australia. Points will be awarded on the basis of one point per VK RNARS Member worked per band, after the commencement date of January 1st, 1979. To qualify the following is required — For amateurs residing inside Australia, 15 points for amateurs residing inside Oceania, 10 points for amateurs residing outside Oceania, 5 points

In addition for amateurs residing outside Oceania contacts with VK RNARS Members on the 3.5 MHz band will count double points. For the purposes of this award, any RNARS Maritime Mobile Member when located inside Australian waters may be counted as a VK Member.

3 The award will be endorsed ONLY on the request of the applicant and the following endorsements are available "ALL CW", "ALL

SSB", "ALL 3.5 MHz", "ALL 28 MHz", "ALL NOVICE", "FIVE-BY-FIVE". The last endorsement being for gaining at least five points on each of the five high frequency bands.

4 To claim the award, no QSLs are required. However hull log details showing the VK Member (or I/M/M plus OTH) worked, their RNARS number, date, time, frequency, mode, plus an application fee of \$1.50 Aust. or 7 IRCS are to be sent to the Endeavour Award Custodian Mr R. Bally VK5MID, 43 HMAS Australia Road Henley Beach South, SA 5022, Australia. Please ensure all cheques are in Australian currency and made payable to "A Bally" Cashy state what endorsements are earned. Certificates to successful applicants will be forwarded by airmail as soon as possible after the claim has been checked.

## JOHN MOYLE MEMORIAL NATIONAL FIELD DAY CONTEST 1979—RESULTS

### 24 HOUR

#### Section A: Tx Phone.

50X	3568	4AMHD	240
4NFL	1613	4NPFY	102
3XZM	1352	8NT	85
4XZ	1122	4NDX	60
4ARH	250	4NLY	60
4ADB	240	4NHS	50
4AAO	240	4NDW	60

#### Section B: Tx CW

No entries.

#### Section C: Tx Open.

50R	2079	2BDT	300
3AJQ	1756	2VEO	125
3AKG	1285		

#### Station D: Tx Phone Multiplex.

4WZ	5148	8	4FM	2531	2
6DA	5737	8	4WIT	2157	13
3BGG	5328	5			

#### Section E: Tx Open Multiplex.

3ATL	18981	17	1WI	3445	5
2B2K	8485	18	6ZL	2369	7
3APC	7676	19	1RC	2084	2
3ATM	7250	12	1ACA	2841	3
3ANR	6371	8	7NB	2710	9
2WQ	5532	9	4WIP	2218	7
2BTZ	4213	8	3AWB	2157	6
3ML	4014	10	2AM	443	2

#### Section F: Tx VHF.

1ACA	1702		4ZIG	250
3YLD	1445		2BDT	232
4ZPG	312		4PV	102

#### Section G: Home Tx.

3XB	1858		3KS	780
3AEW	925		4AZE	455
7KC	645		3KK	365
1RP	830		7NFR	340

#### Section H: Rx.

L30042	650		140015	545
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### 8 HOUR

#### Section A: Tx Phone.

5NDY	471		3NEA	323
5N/M/ZIM	450		3EF	258
3AAW	345		4PJ	150

#### Section B: Tx CW.

2EL	1038		3XU	256
3VF	824			

#### Section D: Tx Phone Multiplex.

SATO	2057	16	4DG	960	3
4BA	1065	5	3CAU	712	4

#### Section E: Tx Open Multiplex.

3UV	1650	8	4WIN	1556	10
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#### Section F: Tx VHF.

3AVJ	813		2ZTB	68
3ZS	568			

#### Section G: Home Tx.

7BD	885		2BOS	345
2P9C	925		3ZPA	270
5OU	470		1LF	155
4ADC	435		5NLIC	100

#### Check Logs

3XK, 3LR, SACE, BBW, SW-E, 4AMA/MN,  
4ATW, 4WIR, 5WZ

Log presentation was much better than in the '78. Please note carefully in future the date of the postmark required for a valid log.

SSB", "ALL 3.5 MHz", "ALL 28 MHz", "ALL NOVICE", "FIVE-BY-FIVE". The last endorsement being for gaining at least five points on each of the five high frequency bands.

4 To claim the award, no QSLs are required.

However hull log details showing the VK Member (or I/M/M plus OTH) worked, their RNARS

number, date, time, frequency, mode, plus an

"application fee of \$1.50 Aust. or 7 IRCS are to

be sent to the Endeavour Award Custodian Mr R. Bally VK5MID, 43 HMAS Australia Road Henley Beach South, SA 5022, Australia. Please ensure all cheques are in Australian currency and made payable to "A Bally" Cashy state what endorsements are earned. Certificates to successful applicants will be forwarded by airmail as soon as possible after the claim has been checked.

In the meantime KV4KV and WODX organized their own DXpedition and proceeded to the island where they operated from 12th to 16th October 1978, and produced about 8000 QSOs. They spent the days operating on Desroches and the night ashore there. As a result of this operation the proposed DXpedition by KP4AM was temporarily shelved pending further demand for the island.

QSLs for KV4KV were issued and the ARRL recognized the operation for DXCC when a letter of protest was received at ARRL HQ from the US Department of Interior concerning about illegal entry on Desroches National Wildlife Refuge by ham operators. This was back in late December 1978.

As a result, the ARRL posted a stop signal on accreditation for its operation and the latest official information is that QSLs from KV4KV/Desroches will not be recognized for DXCC.

Accordingly the Northern California DX Foundation, in co-operation with the ARRL and the US Department of Interior, proceeded with the previously planned DXpedition and the island was activated under the call sign KP4AM/D on early March. We saw a final word from the ARRL before adding this new country to the DXCC listings.

#### SABLE ISLAND

Advice has been received that the operation from Sable Island by VE1MTA during the period August/September 1978 was not legal. Further submissons of VE1MTA cards for Sable credit will be returned uncredited and I await official confirmation from the ARRL before resending credits already given for this operation (Acknowledgement WRW—DXA).

#### PROPOSED NOVICE AWARD

I have received several suggestions that the WIA should issue an award specifically for Novice operators. I agree that some recognition should be given for such achievements by our Novice operators as the WIA awards programme on its callers for HF and VHF operators at this time.

Several criteria should be considered when a new award is created, for example—

- 1 The award should be an attractive piece of paper worthwhile framing up in the ham shack.
- 2 The award should provide a special effort on the part of the operator to qualify for the award but must not be too restrictive as, for example, the WAVKCA (VHF) award.
3. The rules must allow an even chance for Novice operators in all VK call areas to qualify.
- 4 GCR rules to apply as QSL cards and postage are now a major expense for ham operators.
- 5 Separate endorsement for all SSB or a 1 CW.
6. The award to be issued to VK Novice operators only. Once you achieve full CW status you become ineligible.
7. The award must not be too difficult to administer (from the award managers' point of view HI!)
8. A nominal fee should accompany all applications as I have received one or two award applications lately that have not contained any donation to the callers. If I am not very careful I will soon reach the stage where I will have to finance this job on fresh air.

As a suggestion I think the rules of the WAVKCA award as published in the March 1979 AMATEUR RADIO could be suitably amended to provide the basis for a proposed WAVKCA (Novice award).

Novice operators would be required to complete the 22 QSOs but would have to work hard to catch a VKD and VK9.

I invite any suggestions or comment before I approach Federal Executive to see if they have any funds available to cover the considerable printing costs that would be involved.

Best 73 and Good Hunting.

# SIDEBAND ELECTRONICS IMPORTS

P.O. BOX 23, SPRINGWOOD, N.S.W. 2777  
 WAREHOUSE: 78 CHAPMAN PDE., FAULCONBRIDGE  
 TELEPHONE (047) 51-1394 A.H. (047) 54-1392

A few words of doubtful wisdom about my recent struggles with TRIO KENWOOD AUSTRALIA. After buying around \$100,000 worth of transceivers and accessories from them in the 6 months between May and November 1978, they were unable to supply me more than a miserable 5 pieces: TS-120-V just before CHR STMAS 1978 and no more but a few more in FEBRUARY 1979. Naturally I objected to that treatment and also because their prices had become equal to what the TS-120-V costs retail in Japan. I decided to import a quantity of TS-120-V sets only directly. As a result I had stock of them when my "friends" in Artarmon had none yet and that must have hurt them, consequently their "warning" in the APRIL 1979 issue.

TRIO KENWOOD JAPAN sell their products under the TRIO brand in Japan and exports the same as KENWOOD units. There is absolutely no difference between a TRIO and a KENWOOD TS-120-V. If Artarmon maintains there is, they simply are not telling the truth. I fully guarantee my TRIO TS-120-V imports myself and fortunately can sell them a lot cheaper than when acquired through the Artarmon Office.

But again TRIO and KENWOOD are one and the same. My TS-120-V's carry the TRIO KENWOOD CORPORATION tag and come with English manuals. As a rugged individual in this amateur equipment business for 15 years since 1964, I have been accused of importing SWAN YAESU MUSEN under cover, assembled in Hong Kong or salt water damaged by parties who tried to explain why they had to sell dearer than I could — all sour grapes and nothing else. Arie Bies VK2AVA

## HY-GAIN ANTENNAS:

12-AVG 10-15-20M vertical	\$50
18-AVT/WB 10-80M vertical	\$125
TH6-DXX 10-15-20M 6-el yagi	\$300
TH3-MK3 10-15-20M 3-el yagi	\$260
TH3-JR 10-15-20M 3-el yagi	\$175
204-BA 20M 4-el tiger array	\$230
2M 5-el yagi w/balun 6'3" boom	\$25
2M 8-el yagi w/balun 12'5" boom	\$30
11M 5-el yagi 17' boom	\$70
BN-86 balun for beam buyers	\$20
HY-Q (USA) 50-ohm balun	\$15

## ROTATORS AND CABLES

All rotators for 28V AC operation-	
KEN KR-400 medium duty	\$125
CDR BT-1A light duty w/push button programmable	\$90
CDR ham III heavy duty	\$175
CDR tail twister extra H/duty	\$225
Bottom bracket CDR rotators	\$10
KS-065 stay/thrust bearing	
1 1/4" to 2 1/2" masts	\$25
RG-58U co-ax cable, per yd	30c
RG-8U foam co-ax cable, per yd	80c
8-cond rotator cable, per yd.	60c
7/8" H.D. VHF/UHF co-ax, per yd	\$3
CABLE-cutting and packing, per length	\$1.50

## ACCESSORIES

Voltage regulator 18V AC Input	
12V DC 3A output	\$23
240/18V AC transformer	\$10
5M RG-58U w/PL-259 one end	\$2.50
Bumper mounts 3/8" 24-thread	\$5
Gutter mounts 3/8" 24-thread	\$3
CO-AX CONNECTORS	
PL-259-SO-239 cable joiners, ea	75c
Right angles & T connectors, ea	\$1.50
GLP right angles RG-58U to SO-239 w/lock nut & weatherproof cap	\$2.50
Double female connectors	80c
In-line mic sockets 3 & 4-pin, ea.	75c
Mic sockets 3 and 4 pin, ea	75c
MLS right angle-RG58U to PL-259	90c

KDK KYOKUTO DENSHI model FM-2016A 2 Meter 144 to 149 MHz 1000 channels 15 to 20 Watt FM transceivers with digital read-out, 4-channel memory and scanner, with microphone and mobile bracket, RIT, the lot for only \$360

## KENWOOD PRODUCTS

TS-520S 10-160M transceiver	\$675
TS-700 SP 2M all mode trans	\$850
TS-120V 10-80M mobile trans	\$550
TR-7625 25W 2M FM trans.	\$480
TL-922 10-160M linear amp.	\$1100
DK-520 adaptor (TS-520)	\$15
LF-30A low pass filter	\$25
TV-502 2M transverter	\$300
AT-200 antenna matchbox	\$175
DS-1A DC/DC converter	\$75
VFO-820 for TS-820S	\$185
VFO-520S for TS-520S	\$160
SP-520 for TS-520S	\$30
YG-3395C CW filter (TS-520S)	\$50
MC-50 desk microphone	\$45
MC-10 hand held microphone	\$20
HC-2 ham clock	\$35
BS-8 pan adaptors	\$65

## YAESU-MUSEN PRODUCTS

FT-7 10-80M mobile trans.	\$450
FT-301S 10-160M mobile trans.	\$600
FRG-7 5-30Mhz receiver	\$319

## NOVICE SPECIALS — TRANSCEIVERS

10M Sideband SE-502 USB/AM 15W PEP-240V AC 12V DC-inbuilt SWR/RF meter 28 3-28.6 mhz-clarifier tuning transmit and receive	\$125
10M Universe 224-M USB/AM 15W PEP 12V DC 24-ch. 28.480 to 28.595 mhz, 5-khz steps-clarifier tuning transmit and receive	\$100

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Arie Bies (VK2AVA) Proprietor

Ray Lopez (VK2BRL) Manager

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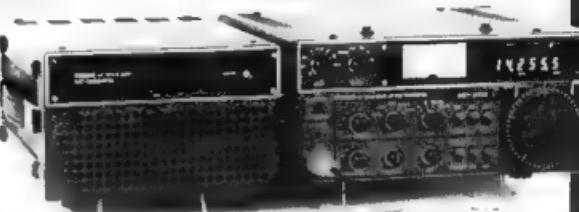
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IC-280 2 MTR FM  
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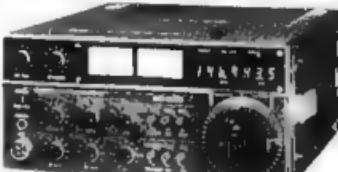
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PLEASE  
SEND FOR  
PRODUCT  
CATALOGUE!



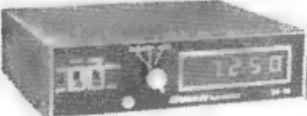
IC-211  
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SSB HF TRAN.  
DIGITAL DISPLAY

MODEL 350D HAS THE SAME  
SPECIFICATIONS AND  
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EXCEPT THE UNIT COMES WITH A  
BUILT-IN DIGITAL FREQUENCY  
DISPLAY WITH READOUT TO 100MHz.



MX-100 \$630.00  
100W PLUS  
MOBILE SOLID STATE

DEALERS WANTED  
IN ALL STATES!

350B . . . . . \$590.00

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# KENWOOD

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 TS 7000 A 2 M FM 25W Transceiver  
 TR 7500 2 M FM 10W Transceiver  
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 VFO 700 S External VFO for TS-700-SP  
 SM 220 Station monitor  
 BS 8 and BS 5 PAV adaptor  
 SP 820 Deutet Speaker consol  
 SP 520 Speaker consol  
 SP 700 Speaker consol for TS-700 & 800  
 VDX 3 Vox unit for TS-700 & TS-800  
 DS 1 A DC converter for 520 S & 820-S  
 DG 5 External digital display for TS-520-S  
 AT 200 Antenna coupler  
 MC-30 S Microphone 500 OHM  
 MC-35 S Microphone 50 K OHM  
 MC-10 Microphone 50 K OHM  
 MC-50 Deluxe desk Microphone dual imp  
 HC 2 Deluxe Ham clock  
 YG 68 CW filter for TS B20  
 YC 3395 CW filter for TS 520  
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 HS 4 Headphone  
 RD 15 Dummy load 450 MHZ 15 Watts  
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18 AVT/VWB 10-80M vertical 23' tall	\$125
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HY QUAD 10-15-20M full size cubical quad	\$260
2M 5 el Yagi w/balun 6 3' boom	\$25
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BN 86 Buns w/50 ohm 1'	\$20
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### ANTENNAS SUITABLE FOR TUNI

11M 5 el Yagi 17' boom	\$70
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KEN KR 4000 rotator medium duty 28V-AC	\$125
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SKY 60 six feet long 3.5 MHz	\$28
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SKY 20 six feet long 14.150	\$26
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SKY 10 six feet long 28.500	\$24

### CRYSTAL FILTER, 9 MHz similar to

FT 200 ones. With carrier crystals

### COAX CABLE CONNECTORS

PL 259
SO 239 Chassi Mount
Male to male joiner
Female to female joiner
Angle connector

### Accessories

SWR 50A 3.5-150MHz SWR meter	\$26
12VDC regulated supply	\$26
5M RG 58 U w/PL 259 one end	\$3
Bumper mount c/w 3/8" 24-thread ant. mount	\$7
Gutter mount c/w 3/8" 24-thread ant. mount	\$4.50

SIDEBAND ELECTRONICS SALES, 477-479 PACIFIC HIGHWAY,  
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KENWOOD AMATEUR RADIO EQUIPMENT  
MAIL ORDERS: P.O. BOX 184, SUTHERLAND 2232.

PETER SCHULZ, VK2ZXL

# WICEN

Ron Henderson VK1RH  
Federal WICEN Co-ordinator  
53 Hannaford St, Page ACT 2614  
Ph. (062) 54 2058, A.H.

## WICEN EMERGENCY PLANS

This issue I wish to continue the WICEN training course theme with some thoughts on WICEN Emergency Plans.

Experience has shown that such a plan, be it for a State, region or area, needs to consider most of the following factors:

- (a) **Regions.** Where an area of responsibility is subdivided into regions or areas it is worthwhile including a marked map clearly delineating boundaries.
- (b) **Tasks.** The likely WICEN tasks can be expressed in a couple of clear statements, e.g. VHF local coverage or HF links, also mobile and fixed requirements.
- (c) **Organisation.** The local organisation showing both higher and lower responsible authorities and liaison should be shown on a line diagram.
- (d) **Responsibilities.** The duties of key office-bearers, e.g., co-ordinator, deputy co-ordinator, etc., should be clearly spelt out.
- (e) **Activation.** When considering the aspects of activation of an emergency network list the likely reasons for activation, the recognized requesting authorities, i.e. SES, Police, and the need for P. and T. clearance.
- (f) **Call-out Procedure.** The call-out procedure follows from the activation considerations. It should include the method of implementation and deployment and include key names and addresses, with telephone numbers, of both likely requesting authorities, WICEN office-bearers and the P. and T., e.g. the DRI.
- (g) **Co-operative Authorities.** It is worthwhile listing likely government departments and organizations with whom co-operation could be expected during an emergency.
- (h) **Facilities.** This heading covers traffic and relay stations, net monitoring, mobile and portable stations, including vehicle load lists and emergency frequencies.
- (i) **Operating Procedures.** A précis of operating procedures, derived from the WICEN "Emergency Service Communications Procedure", or "the little grey book", Civil Defence Communications Part III, 1969, is usefully included for it keeps all information and instructions in the one paper.
- (d) **Regulations.** As a closing reminder, the relevant Regulations from the Handbook should be noted. These are: Reg. 84: Secrecy of Communications. Reg. 94: Authorization of Emergency Networks.

Reg. 96: Clearance of emergency frequencies.

Reg. 109: Emergency communications.

I am sure you will find that, after compiling your WICEN Emergency Plan, you will have a better feel for your role and

★ ★ ★

In a recent issue of AR I gave an example of how to send a formal message by radio. Here I wish to cover the recording and logging actions associated with being a WICEN radio station.

### RECORDER

The primary record is the station log. It should contain details of time, station called or calling, and the event or message identity. At an opti-station the log is adequate for all recording, as formal messages can be logged by their originating number and date time group (DTG). You will recall from my last article that these uniquely reference any formal message.

### OPERATOR'S CHECK SHEET

The Operator's Check Sheet (CDF7) is normally used at control stations, relay stations or multiple net locations to supplement the log for all formal traffic. The check sheet is printed in two parts, an "IN" section and an "OUT" section and should contain sufficient information to record and trace formal messages. The top part of a check sheet, CDF7, is reproduced below.

### THE MECHANICS OF MESSAGE HANDLING

The mechanics of message handling follow the following sequence:

Acceptance of messages —  
scan for completeness.

Delivery of messages —  
deliver to action (and info) addresses by rank or hand.

will be able to approach it with confidence. And that embraces one of the key phrases in the WICEN mission, namely "... a pool of trained licensed operators, with equipment, available for deployment..."

★ ★ ★

note a local sequence No. and receipt time in the top shaded area,  
add DTG if necessary,  
check 'from' and 'to',  
check/review officer's name/authority  
place in sending queue in priority order

### Sending messages —

log to reference message uniquely, either in log book or operator's check sheet, f Lsd,  
complete D shaded box at foot of message  
form,  
file safety

### Receiving messages —

log as for sending,  
complete R shaded box at foot of message  
form,  
keep a duplicate file copy f directed.

### Delivery of messages —

deliver to action (and info) addresses by rank or hand.

Note that the present I.R.S. arrangements concerning emergency networks introduced by P & T, require you to keep a complete log and to retain messages for 12 months.

R. G. Henderson  
Federal WICEN Co-ordinator

CIVIL DEFENCE									
OPERATOR'S CHECK SHEET									
IN MESSAGES					OUT MESSAGES				
No.	Date/Time	From	GR	Page	No.	Date/Time	From	GR	Page
1					1				
Layout of operator's check sheet (form CDF7)									

### WICEN ACTIVITIES IN VICTORIAN EASTERN ZONE

It seems that our activities in Amateur Communications are being increasingly noticed.

Many Amateur operators are active with State Emergency Services (SES) groups — passing on "know how" to non-technical operators and joining the various SES local groups. This results in police and other organisations becoming more familiar with our communication potential.

This Zone, upon request, had two worthwhile exercises during March 1978.

During the times of 1900 hrs March 10 through to 1900 hrs. March 11, a sizeable team helped with communications for the Marley Point Overnight Yacht Race.

This event had over 600 yachts participating starting at the top of Lake Wellington, sailing through the night across the lake, through McLean's Straits, into Lake Victoria, and on to finish at Paynesville.

The WICEN involvement was to pass messages from starting point to finish point and between two intermediate check points. These messages were for the Gippsland Lakes Safety Council and St. John Ambulance Brigades.

Mostly the comms were on 146 MHz and 3,600 kHz. Two metric transceivers, with operators, were on two St. John Ambulance motor boats, and one Safety Council patrol boat.

We also monitored messages on the Safety Council frequencies used by most of the yachts. Ian Foster VK3ST, on his launch "Leania", worked 80 and 2 metre marine mobile at the finish line, and he organised a land station at the same point. Land stations were powered by batteries and portable motor alternators. Zone members supported this exercise very well, and all enjoyed the experience even though we worked through the night without sleep. Several Novice operators were introduced to portable operations, and we left most of the message handling to them.

Three weeks later the Yacht Club invited us all to an excellent free barbecue at the Club House, where we were thanked and complimented by the Yacht Club, Safety Council and St. John Ambulance Division for a commun'cat on job well done.

Then on March 17 and 18 we were involved with the "Academy" Car Rally covering some 200 miles through East Gippsland and back roads and tracks. Our job was to pass messages, even to the middle conduct of the event and to pass car numbers for check points to the next one ahead. Operators worked through the night under terrible conditions at manned posts in Sale, Davey Creek, Bruthen, South Bruthen and Wayzaga. We were officially thanked for a job well done and all operators concerned enjoyed and valued the experience.

Many operators took part in these exercises but are too numerous to mention here. Our thanks to all concerned.

Brian VK3BBB relayed messages between aircraft and ground in connection with the WICEN comms with the recent Power Boat Race from St Kilda to Lakes Entrance.

From Keith V Scott VK3SS, Zone Co-ordinator

Are you checking  
our bands for

## INTRUDERS

AND REPORTING SAME TO  
THE INTRUDER WATCH  
CO-ORDINATOR?

# MAGAZINE INDEX

Syd Clark, VK3ASC

## RADIO ZS September 1978

The Mono-Jay Vacation Antenne. The Sounds of History

## RADIO ZS October 1978

When Radio Was Fun, The Unseen Eye, A Short History of Aircraft Radio

## RADIO COMMUNICATION December 1978

Healarks Quartz 16, 144 MHz FM Transceiver (Review), Anti-UV Filters, Circuit Design with NAND AND NOR; New Region 1 IARU Operating Standards, Transoceanic DX Contacts on 144 MHz, Preliminary Results of a Six-Year Study of the Lower Troposphere Over Southern England — Rain, Clouds and the ITU

## RADIO COMMUNICATION January 1979

A 7 MHz Vertical Antenna; Preliminary Results of VHF Study, Pt. 2; HF Propagation Predictions Supplement; The 1978 AGM General Rules for VHF/UHF/SHF Contests; '879; RSGB HF Contest 1979; HF Rx Contests 1978; Code of Practice for VHF/UHF Contest Operation; Code Letters for Use in RSGB Contests

## SHORTHWAVE October 1978

Amateur Radio-Communication or Technology, or Both, Pt. 6 Multi-Mode with the NR-55 FM Monitor Receiver, From Stowaway on Forty Metres

## 73 June 1978

Happiness is being a Ham Manufacturer; Extended Double Zapp, New Dipole Feeder; The C.I.M.-Dweller's Depth Wall TI You Try 16 Elements; Working with a 20m Beam, A Better Feedthrough for Cables; Resuscitating the Beverage Antennas, How to Hang a Longwave The "German" Quad, Mobile in Disguise, Better than Quad; The Perverted Double Vertical Antenna, Creeping Crud Got Your Signal, Towering Low Band Antennas, The 50 Metre File Cruiser Phased Verticals for Easy DX, Modemising the Matchbox, The Misery Magnetic Antenna, The 70m DX Antenna, The Invariable A-1-Band Antenna, Who Says Verticals Don't Work; Low Cost Keyboard — II, Computerized Loop Antenna Design, Hey! Wall for Me, Morrow's Marvelous Monitor, Enjoy All Bands with a Remote Tuner; New Use for CB Antennas, Confessions of a Vertica Fanatic, Notice Guide to Phased Antennas, The 21 Element Brown Bomber, The "Towerless" Tower, The Two-Hour Two Metre Beam, New Try 1280 MHz, The OSCAR Boppers, Crashout! Does It Again; The S-Meter Bender, Amazingly Simple Log Periodic Antenna Disguised Birdhouse Vertical

## 73 November 1978

Electro-Sculpture The Sunseas Method, The UART Gear Star Series Grounding Reflector Bars, Bargain Pre-amp, Murphy's Master See, How About Some Ham Shock Safety, Head 'Em Off at the (High) Pass, 555 Basics and More, Educate Yourself! Novel RTTY Autoplot, The Easiest Offset Ever, The Chip Switch, Automatic Repeater Offsets, CB to 10 — The Lafayette Telstar SSB-75, The History of Ham Radio, Build an FM Tweaker; Another Surplus Treasure, Pifft! — Zapped Again, One Meter — Many Jobs MDS What is It?, FM Calibration on a Budget, Build the 550 Wonder, Add an A-S Scope, CB to 10, A Radiotic Project, R-10 No More Excuses, The Jackpot Station, RX Bridge + Calculator — VSWR, High Seas Adventure, Ham Style, and What Followed Me Home, A Hex on Your 8223 The Micro Maestro, SSTV Meets SWTPC, Pt. 1 Squeezing Cheap Receivers Try FM on 29.96 MHz, Build the Brute, The Multi-function Scan Can Be a Weather Genius, Happiness is a DMM Kit, Vintage Receiver Mods, Dark Secret of the TR-7500, The TTL Lifesaver, Build the "Version Three", Heath's GR-89 Gets Religion, Four Terminals Are Better Than

Three, CB to 10: A Realistic HT; The Circuit Board Aquarium, Build a Dummy Dummy, Who Needs Transistors, Blockbuster RTTY Articles, Automatic Autopatch; Using Bargain Muffin Fans, Loran-C as a Frequency Standard, Ham Help, An Experimenters Delight

## 73 December 1978

A Diker's Dream Vacation; Close Encounters, The Schizophrenic Triangle; From CW to Computers, A 26c Touchline Mod; Space Age Surplus, An X-Band Transceiver, SSTV Record-Controller; Receiver Diseases, Autophasing the WEFAX; The Lunch Counter; Confessions of a Stripper, Tuned Feeders and Other Good Stuff; Build a Realistic S-Meter, Wow! A Good Portable Receiver, The Xlrex Video Terminal, Light Up Your Life, High Seas Adventure — Ham Style, Whithier Microcomputers, SSTV Meets SWTPC, Pt. 2, A Multi-Memory Morse Machine, This is Your Computer Speaking, RTTY with the KIM, DX Delight, Big Man Attacks, The Packet Radio Revolution, This Voltage Standard is Precise, The 225 Goes Digital, WARC 75 Preview, The "Film-Fan" Factor, Build the Flexi-Filter, The Klessic Kilowatt, Ham Radio Goes to School, What's Your UF, Fail-Safe, Code Practice Oscillators, PCs Are Easy; The Games People Play; An Improved HV Tube Socket

## CO October 1978

Inside KVVG — The Amateur and His Pacemaker, An Optimum Speech Filter, Results of 19th Annual CO 160 Metre DX Contest; Converting the Radio Shack Crosley III CB Beam for 10 and 15 Metre Use, The National NC-101X — A Receiver that Changed Amateur Radio; GCD4AA — Geenyay Island, CQ Reviews, The Fleisher Corp TU 170 RTTY Terminal Unit, CO Reviews, The Electronic Research Model SL-55 Active Audio Filter, Pulse for the 30th Annual 1978 CO WW DX Contest; A QRP Transceiver, The Magicom RF Processor Module in the Kenwood S-829; A Look at the KXW3 Antenna Farm, Amateur Radio Grounding, Pt. 2, Contest Calendar for October and Early November

## CO December 1978

Amateur Radio Has Lost a Good Friend — Lawrence W Le Kashman W2AB, 1920-1978, A CW Low Power Transmitter for 80 thru 10 Metres; A Four-digit One-IC Voltmeter—Almost, Chasing the Ultimate DX from Arecibo, Puerto Rico; Antennas 10, 15 and 40 Mx, The Ins and Outs of the Washington Scene; Sources of Aid for Prospective Amateurs; The EACBR Multi-Multi Contest Story, Results of the 1978 CO WW WPX SSB Contest

## CO January 1979

All About Kits, Pt. 1, Should I Build or Shouldn't I Build; Solid State Tailored R/C Substitution; A Novel Beam Direction Indicator, What QSL Cards Are and How to Use Them, The KBEQ Story; An Ultra-Smooth Ball Bearing Keyer Pendule, Squeezing Up the Sure Pro Receiver, Automatically Controlling Charge Current for NICAD Batteries, Sunspots and Unusual Antennas; Solar Cycle Update, The Early Years; All the Power to the Load, Why not Solar Power, An Inexpensive Method for Pending Frequency Control, Pipe and Multi-Band Vertical Antennas, The DC Analysis of a Transistor Amplifier; The Monster Quad, An Interface Concept for the Emergency Broadcast System and the Amateur Radio Service, Announcing the 23rd Annual CO WW WPX Contest.

## HAM RADIO November 1978

Modest Power Amplifier, Digital Synthesizer; Printed Circuit Layout Techniques, Monolithic Crystal Filters, 40 Metre Beam, Micro Improvements, Multiple Oscillator Wave Matching Transformers, Phase-Locked 8 MHz BFO, Mobile Antenna Magne-Mount, Digital Report/ID for RTTY, Tone Decoder, Antenna SWR Meter, IC Tester Using the KIM-1 Microprocessor, Simplified Capacitance Meter, improvements for the Measurements 59 Grid Dipper

## HAM RADIO December 1978

High Frequency Transmitter Lightning Protection, Solar-Powered Repeater, Universal Digital Repeater, Oscar Calcu-peter, Simple Video Display, Collins 325-1 Improvements; Top-Loaded Delta Loop, Updated Vacuum-Tube Receiver, 1296 MHz Double Stub Tuner, 15 GHz Prescaler

## HAM RADIO January 1979

Two-Metre Synthesizer, Measuring FM Deviation 10 GHz Gunnplexer Transceiver, Fast and Quiet Transmit/Receive Relay, Adjustable 5-Ampere Power Supply, Ham-III Digital Readout, Anodizing Aluminum, CMOS Keyer, Digital Techniques Basic Rules and Gates

## RADIO COMMUNICATION February 1979

Ladder Crystal Filter Design, Power Transformers with Low Voltage Secondaries, A Rugby M57 Time Coded Clock, Band Planning 145.8 to 146 MHz

## RADIO ZS November 1978

The Biggar Type 2, Forgotten Discoveries, TARIU Region One Conference (Hungary — 1978); The HB9CV 2-Metre Beam

## RADIO ZS December 1978

The IUA3AR Switch-Rotatable Quad, Amigos de las Americas

## SHORTHWAVE November 1978

Antennas — The Weak Link, Pt. 6, A Useful 45 MHz Crystal Oscillator

## 73 October 1978

VHF Piddlington: VHF On Your Frequency Counter; The KMCIC Story, Good News; Mighty Mods for the 220S, Improving Heath's HT; Total Control; Oddball Splitters and the IC-225; The History of Ham Radio, Pt. 6; Re-using Coax Connectors; Building from Magazine Articles Super Simple TT Generator; Microstrip, Low-Pass Filter Primer, Hello Hamdom; More Coming of Age, Re-Juvenile & Pneumatic; High Seas Adventure — Ham Style, Build a Better Beeper; DMM Buys a Guide, Trip a Threat; The Ultimate Two Metre HT Survey, Interrupts Made Easy, Use Computers? Who Me? Bird Watching in BASIC Land; Compliers and the Real World, World's Cheapest OS: The Long-Term Effects of Working with ICs; The Lady Saw; The Frugal Alternative, PLL Techniques, Build a TTY Tester; It's a Ham's Word, Afternoon Weather Watchers, Warnings to East, Jeds, Happiness is a Smart Scanner, Tuning Your Linear, CB to 10, Tuned Circuits in Your Jammer Box, Support Your Local Fire Chief, Improved Scanner for the VHF/One Plus; A Perfect Power Supply, Mobile HAM Blanket; Further Adventures of the IC-225: Antenna Design; Something New, Build an Audible Transistor Tester

## 73 January 1979

The Italian Freq Generator Happiness is a WE-800, Explore the World of VLF; The SHAF, A Remotely Tuned Matchbox, Dodes of the Dead, Building an Economic Receiver; The ST-5 Plus, Build a \$10 Digital Thermometer; CB to 10 Try Little KISS, Autorak II, The Twister, Adam-12 Revisited, Digital RTTY is Simple; Take the Plunge, Two Metre Tone Alert, Sneaky Car Security Alarm System, Design-A-Holster, The COSMAC Connection, Pt. 1; Noise Bridge BASICS The Morse Master, The Mini-MOUSE Key, One Step Further; Hurry for LF Filters; The Soft Touch Keyer, SOS SHIP in Trouble, Mini-contests, Are You On Amps Or not?, CB to 10; Electronics Education by Mail Order, Time-Domain Reflectometry, High Seas Adventure — Ham Style.

# S.E. QUEENSLAND TELETYPE GROUP

## SE QUEENSLAND TELETYPE GROUP

The aims of the group include promotion of the use of the RTTY mode and education of amateurs in RTTY techniques. Towards these aims the group is organizing technical lectures for each of its monthly meetings and producing a series of circuit and other technical information for distribution on club members.

The group transmits a weekly teletype news broadcast under group members' call signs on Monday nights at 0900Z or 1458.6 MHz (IC\* 52) and on 3540 kHz. A phone call-back is conducted after each news broadcast.

At the first meeting in February 1979, the following officers were elected: President Doug Hunter

VK4ADOC Vice-President, Brian Beaumah VK4AHD, Secretary David Barnbaum VK4ADB, Treasurer, Brian Hickney VK4RX, Technical Advisor, Roy O'Malley VK4ZQ. The group has recently gained affiliation with the Wireless Institute, Queensland Division.

The group meets on the First Friday of each month at the Holland Park State High School, Bayswater Road, Holland Park, Brisbane, at 8 p.m. Enquiries regarding the group may be directed to P.O. Box 274, Sunnybank 4108, or after hours telephone (07) 399 5366.

Yours faithfully,

D. Barnbaum VK4ADB, Secretary SEQTRG

## LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

68 Elmatta Street,  
Bradton, ACT 2601.

The Editor  
Dear Sir

I refer to the letter from Edwin R. Roots published in your March issue of, more specifically, to that gentleman's signature block.

I accept that his degree, his call sign and his being a dealer for Altec Radio are all relevant to the subject matter of his letter, but what has his being a Yachtman got to do with it!!

As I believe I am well known in the amateur radio fraternity I do not append the post-nominal initials to which I am entitled, but simply sign myself!

Yours faithfully

Jim Lloyd VK1CDR

Yachtman, Photographer, Winemaker, Beekeeper, etc.

43 Barrett Street,  
Gympie, Qld.  
20-3-78.

The Editor  
Dear Sir,

I wish to thank those amateurs who so generously answered my plea for information on the Geolos TR222 Tx.

I received five (5) replies two of which included photostatic copies of the circuit and information, and one a technical bulletin from Geosco (Italy) for my perusal and return.

Many thanks.

Your sincerely,  
Barrie Beismann VK4LN

The Editor,  
Dear Sir,

It is most fortunate that Mr. Rex Black VK2YA is not typical of the full-call amateurs I have had the pleasure to be associated with. His hollow-thin narrow minded attitude towards any new innovation to what he obviously considers to be his modus of communication cannot be tolerated by any clear thinking amateur, novice or full-call alike.

Members of the Woolley Barn Charter are worldwide and I for one know the dedication which went into the Novice class instruction organised by its members.

To refer to its members as "dregs of CB" and possessors of "unstar power" is childish in the extreme and as a Charter member I bitterly resent Mr. Black's unfounded and libellous allegations. On behalf of all Woolley Barn members I demand an apology through these pages.

Yours in anticipation,

David F. Timson VK3INZA WB2B

33 David Street, Koxfield, 3180, Vic.

21 Bovell Street, Camp Hill,  
Brisbane, Q 4152  
5th April 1979

The Editor,  
Dear Sir,

For general information, the ARRL (DXCC Section) have issued the following definition of a QSL card which is acceptable for DXCC credit:

"A valid contact, no matter how it is established, is a contact between two identifying stations who have established two way communication with each other. Regulations require that you identify the station you are working, as well as your own."

Please note that there is no mention of signal strength reports! As long as the card shows the call sign, date and confirms that a two way QSO was held, it will be accepted.

Therefore, the commonly held belief that a card must show a report of at least 3 x 3 (or 33) does not appear to be true!

Yours truly,

Fred Lubach, VK4 Outwards QSL Officer

The Editor,  
Dear Sir,

I noted with interest in April edition of Amateur Radio that someone is using H. O. Kellah VK3AHK's call sign I wish to say that some of the Geelong hams are also having their calls used by "pirates", the main ones being VK3SY, VK3AGN, VK3AOP, and my own, VK3ALG. This has been going on for at least four years. I just wonder how many other hams in Australia are having their call used also. I myself have been very active for 31 years. I have notified the Department of such practices.

F. A. Freeman VK3ALG.

The Editor,  
Dear Sir,

As I am not yet a member of the WIA, it is only through the courtesy of a friend that I have just read the February issue of Amateur Radio. Two of the letters absolutely amaze me. Firstly, I am surprised that you saw fit to publish the letter on page 39 signed (?) VK3M . . . as surely anyone making such allegations against David Remabotom, or indeed any other person, should have the intestinal fortitude to put his name to them.

As to the letter from Rex Black VK2YA, his libellous attack on the Woolley Barn Club is unjustified and as a licensed amateur, licensed CB operator and a holder of the VB Club Certificate No. 35, I resent the accusations and implications of the letter.

The generalizations and assumptions in his letter could only have been made by one totally unaware of the situation. The Club's award certificate can only be gained in one of two ways, firstly by qualifying as an amateur through one of the courses run by the Club, as I did, or secondly, by earning sufficient points by contacting by radio other members. It is therefore no more an attempt to take over the band than is the issue of, for example, a DXCC award, or a JARL award or membership of the Mopuke Club, etc., etc. To suggest that the Club is "determined to inject the sub-standard mental processes of the dregs of the CB movement" is offensive in the extreme to me, and I expect, probably fully, an open apology from Mr. Black.

I have nothing but the highest praise for the care and diligence of the Club's radio course instructor who helped me and many others to qualify for a licence. Hardly the sort of behaviour one would expect from a group "Determined, etc. . . ."

It is unfortunate that Mr. Black does not appreciate the Club's humour either. Possibly I may not agree with his type either, but I'm not going to make such a noise about it! I thought the true interpretation came from the Editor in a recent article on the Club, which was virtually along the lines of "To each his own, but after all it's a free world".

When it's all said and done, nobody has to join the Club or obtain a certificate unless they want to, or unless they have been given the opportunity to do so.

Or is that the trouble, hasn't Mr. Black been asked?

Yours faithfully

D E Jackson VK3VAA, VBB 470, WB 35.

Editor's Note: So that you may obtain your own library of ARs and partake in the many other benefits of WIA membership, I have forwarded an application for membership to you under separate cover (VK3UV).

## TECHNICAL CORRESPONDENCE

The Editor,

Dear Sir,

Ref mode to the FT101 in AR November, 1978.

On page 11 there is a mistake and also the info on changes to the 101-B and E. It should read —

Locate the transistor Q2 in the 101 Mk. 1 and its bias resistors R5 4k7, R6 22k. Q1 in the 101-B and E, and its bias resistors R1 4k7 and R2 22k.

I found this out the hard way!

Regards, . L. Martin VK2II.

The Editor,

Dear Sir,

Because of the large variations in the "standards" adopted for calibration of "receiver signal strength" (S) meters the value of a gain strength report is assessment of the performance of an amateur station's equipment and aerial system is questionable.

The attached copy taken from December 1978 "Radio Communication" appears to be a move towards standardisation of calibration and as such should, I believe, be encouraged. Perhaps you would consider its publication and recommend its use.

Yours faithfully,  
G E Wracks VK6WX

## INTERNATIONAL NEWS

### S-METER STANDARDS

In order to make a uniform reporting system on the amateur bands possible, taking into account the widespread use of the "subjective" S-system, and the large deviations between the characteristics of S-meters on current amateur equipment, IARL Region 1 recommends the use of the S-system for signal strength reporting on the amateur bands based on the following standards:

- One S-point shall correspond to a level difference of 6 dB
- On the bands below 30 MHz a meter device on or near shall correspond to an average power of a CW 1000 Hz generator connected to the receiver input terminals -73 dBm
- On the bands above 30 MHz this power shall be -93 dBm
- The metering system shall be based on quasi-peak detection with an attack time constant of 10 ms ± 20 ms and a decay time constant of at least 500 ms

### COMMENTS

- Signal reporting on the amateur bands at the moment is based on the well known subjective RST system. Although the system is very useful, the availability of modern, somewhat more precisely made receiving equipment makes the use of a less subjective system for the measurement of the strength of the received signal possible. The system to be chosen however must not deviate too much from the "subjective" system.

- The first, and most important, standard to be recommended, will be the definition of an S-point. A value of 6 dB seems very practical. It corresponds to an already widespread

offer a "standard" and give the least problems for non-mathematically-oriented amateurs.

3. Once having agreed upon the value of one S-meter a second, less important, but very useful recommendation is the definition of a reference level.

Taking into account the practical situation it is not possible to define one reference level for all amateur bands. On the HF bands a level of -73 dBm (50 uV over 50 ohm) does not deviate too much from current practice. On the higher bands however where thermal noise is the limiting factor in many cases, a lower level must be chosen and -63 dBm (5uV over 50 ohm) seems appropriate.

#### STANDARD TABLE

5

HF bands Bands above 30 MHz

dBm (V over 50 ohm) dBm (V over 60 uV)

9 + 40 dB	-33 (5 mV)	-53 (500 uV)
+ 30 dB	-43 (1.6 mV)	-63 (1600 uV)
+ 20 dB	-53 (500 uV)	-73 (50 uV)
+ 10 dB	-63 (1600 uV)	-83 (16 uV)
9	-73 (50 uV)	-93 (5 uV)
8	-79 (25 uV)	-99 (2.5 uV)
7	-85 (12.5 uV)	-105 (1.25 uV)
6	-91 (6.3 uV)	-111 (0.63 uV)
5	-97 (3.2 uV)	-117 (0.32 uV)
4	-103 (1.6 uV)	-123 (1.6 uV)
3	-109 (0.8 uV)	-129 (0.08 uV)
2	-115 (0.4 uV)	-135 (0.04 uV)
1	-121 (0.21 uV)	-141 (0.021 uV)

4. Although the standards given above are based on continuous signals, if real traffic non-continuous signals (i.e. A3J) will be encountered, it is necessary therefore, to define the measurement system in more detail.

In many cases the S-meter is coupled to the AGC system of the receiver. Therefore a quasi-peak detector will be taken as the standard with an attack time constant of 10 ms and, although of less importance, the decay time constant should be more than 500 ms.

5. It is hoped that the recommendation will be followed by all equipment manufacturers, so that in the not too distant future one will know how to interpret the strength report of the other station.

Societies should advise their members about equipment manufacturers adhering to this recommendation, and try to avoid publication of receiver designs which do not, in principle, use the recommended standards. Simple means for calibration of at least the 6 dB level ratio should be published." ■

## WANTED

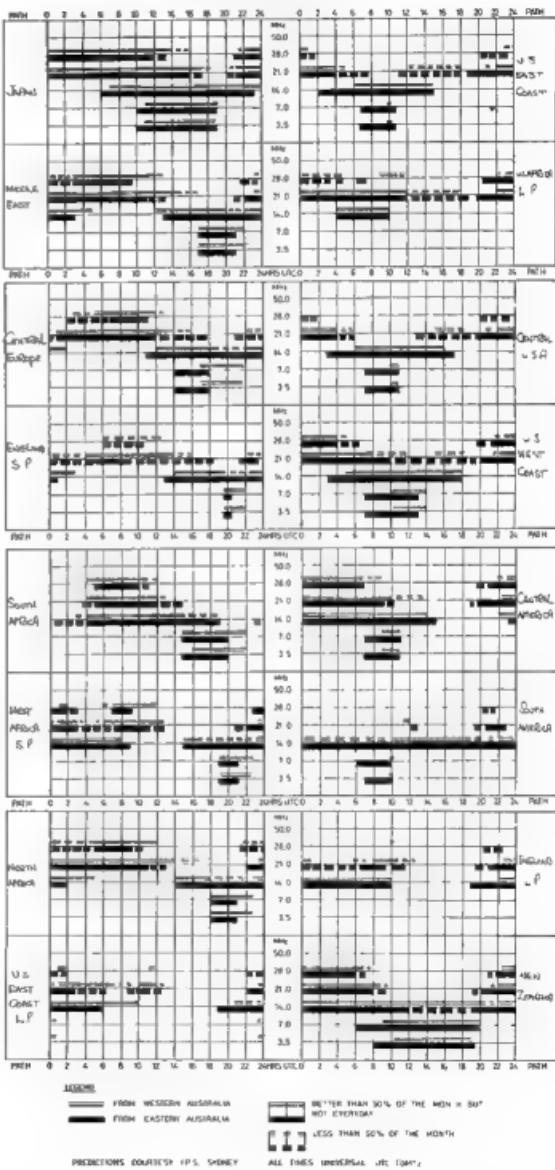
The Project ASERT Committee of the WIA is anxious to obtain a number of Rustrak miniature recorders, preferably having a range 0-1 mA and a chart speed of 5 cm/hour.

If any member or other person reading this advertisement is prepared to donate or sell a recorder of this type, the ASERT Committee would be most grateful.

Please have a look in your junk box and see what you can find; then either write to Box 150, Toorak, Vic. 3142, or telephone Les Janes (03) 338 9284 A.H.

## IONOSPHERIC PREDICTIONS

Les Poynter VK3ZGP/NAC



IPS update for June is delayed due to mail strike — this is the chart for May for information only.

# MEET THE VK2 DIVISIONAL COUNCIL

Photo taken at WI Centre on the night of the 1979 Annual General Meeting.

From left to right: Tim Mills VK2ZTM (Sec.), Ian Mackenzie VK2ZIM (Vice-Pres.), Stephen Pail

VK2VHP, Eric Van Der Weyer VK2ZUR, Fred Parker VK2NFF (Pres.), Phil Card VK2ZBK (Vice-Pres.), Henry Lundell VK2ZHE.

(Photo by Ken James VK2NWK.)



## 20 YEARS AGO

Ron Fisher, VK3OM

### JUNE 1959

The situation in June 1959 was much as it is today. The Editorial page puts it in a nutshell: To Geneva — What then? Sounds familiar. In fact most of the June issue was taken up with reports on the forthcoming Geneva conference and also the proposals released by the Post Master-General's that we would have to face cuts in many of our popular bands. The proposed cuts were: 80 metres, down 100 kHz to 3.7 MHz; 40 metres, down 50 kHz to 7.1 MHz; 20 metres, down 100 kHz to 14.25 MHz; 15 metres, unchanged; 11 and 10 metres cut from 55 to 60 MHz, down to 56 to 58 MHz and an interesting one on the two metre band, a change from 144/146 to 146/150 MHz.

On the basis of this report, Federal Executive sent urgent telegrams to the then Prime Minister, The Rt. Hon. J. McEwan and other members of parliament. This apparently hit the right spot and a great deal of discussion followed in The House, most of which was reported in the June issue of Amateur Radio.

Supporters at the time included Senator Hannan, Mr. (later Sir) A. Fairhall VK2KB and Mr. J. Fraser, Member for the ACT.

A transcript of a talk given by Mr. A. Fairhall via VK2AWX on all HF amateur bands was printed in full.

As you can imagine, this left very little room for technical articles, but a description of a two stage transmitter for 7 MHz was included. Alan Smith VK3AN showed how to build it but omitted to say what the power output was; perhaps too low to measure.

Note that the second edition of the ARRL Single Sideband Handbook had just been published. A review commented on this.

An advertisement from R. H. Cunningham Pty. Ltd. announced the arrival of the Geloso G22Z transceiver and the matching 209R receiver at about \$600 the pair. Perhaps we shouldn't complain about the price of amateur gear these days.

## QSP

### NBS RADIO STATION WWV

Effective December 1, 1958, WWV resumed its previous transmission on 20 MHz. This transmission has been reinstated because of improved propagation conditions on the 20 MHz frequency and will continue as long as propagation conditions warrant.

## HAMADS

- Eight lines free to all WIA members.
- \$9 per 3 cm for non-members.
- Copy in typescript please, or in block letters to P.O. Box 1500, Toorak, Vic. 3142.
- Repairs may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTH means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

## FOR SALE

Yaesu FL2100 Linear, 10-80m, 400W PEP output, 1 year old, little use, mint, with manual, \$450; Cuscraft 2m ringo with instructions, \$30; Hallicrafters FPM-300 SSB/CW Tscr, 10-80m, 250W DC input, AC-DC, solid state, tube final USA made, with manual, new spares available, alias defuse mobile brand USA made, mint cond., with manual, urgent sale, \$450, O.N.O. Dunc TrAC, SSB Tscr, RV4AC, AC4, MS4, MM4, manual, mint, \$975 firm; John Berry, 4 Grosvenor Street, Wollongong, NSW 2525. Ph. (02) 389 6455 Bus.

Telefunken RS E127KW/F for 1.5 to 30 MHz in 5 bands, plus 6 switched xtal chs., A1-A3, AGC on/off, BFO, S-meter, variable bandwidth 0.1 to 3 kHz, all circuitry and cabinet near original condition, also separate connected dual-path antenna diversity unit (with electronic switching), 17 transistors, 6 diodes, handbooks, only \$120 pair, or will separate. VK2KRR, Ph. (02) 449 4624.

Kyocute Synth 2m Transceiver, in box with manual, \$325; Katsumi MC22S speech compressor, \$40; SP400 speaker box, \$35; Osker block 200 power meter, \$45, VK2ZHF, QTHR. Ph. (02) 631 1269.

Comex Rx Yaesu FRG-7 0.5 to 30 MHz, continuous coverage Rx, latest model, w/line tuning, as new cond., \$280, O.N.O. Ph. (03) 91 4041.

Four 8873 Conduction Cooled Tx Valves with two Beryllium heat sinks, sockets and screen rings, brand new, never used, \$200 the lot. Doug McArthur VK3JUM, QTHR. Ph. (03) 609 1511 Bus.

Comex Rx RS229, 29 bands, 1 MHz wide, 1.5 to 30.5 MHz, v.g.c., with matching RTTY demodulator, \$270 the pair; Creed 7B teleprinter with 50 and 45 BWD governors, sound proof wooden cabinet, \$85; metal cabinet, \$50, v.g.c.; white laminesc enclosed cabinet on casters, suits Sigma model 100 teleprinter, \$30, extremely quiet TTY operation; model 15 teleprinter, v.g.c., \$75; and model 16 typewriter, v.g.c., \$45; RTTY demodulator, valve type, covers all shifts, v.g.c., \$35. VK3AOB, QTHR. Ph. (03) 337 4902.

FRG7 High Perf. Triple Conv. Comm. Rx, all bands 0.5 to 29.9 MHz, continuous coverage, drift free Wady loop system gives excellent stability, as new, only \$300; Realistic SX150 comm. Rx, a little beat on 80-40-20m ham bands and eight SW bands, covered in 500 kHz dial segments, plug in two more xits for two extra bands of your choice, with ext. speaker and manual, a bargain at only \$120. Wright VK2BZ, QTHR.

FT76 Transceiver with AC power supply and DC power supply, with 8 xtal \$3.685, 7.008, 7.685, 7.087, 14.150, 14.200, 21.400, 26.550 and VFO, plus mobile cradle, \$350, O.N.O.; PFT203 2m mobile with xtal, channel 40, 50, 1 and 4, \$250, O.N.O.; AC power supply for 2m rig, \$50. Greg Whiher, Ph. (03) 873 3939.

TS820B, modified for Novice use, plus DC supply, \$600; FRG-7 Rx, \$200; Home brew 10/15m 4 el. each yagi with KRM400 rotator, \$200; home brew tower, 2 sections, 40 ft. tall with winch, \$150; HC500 ATU, \$100. Jeff Boyd VK3NJS, Ph. (03) 791 7519 A.H.

KLM 140W 2m Class B Linear, two RCA 5796 valves, soft linear for 2m, 30-3200 V, \$100, incl. jumbo sockets, three 572B/160L valves, all used but in good cond., three 2C39 valves, 4CX25C single ended 2m amplifier, tube, socket, mechanics and tuned line only, offers on any or all; first reasonable offer on any item will be accepted. Ian Foster VK3ST, Ph. (051) 882 8111.

Photocopying Machine, "Archlight", complete with developer, will take copies up to a full 32 in. width, \$160, plus freight. Ian Foster VK3ST, Ph. (051) 56 8311.

TS820 Transceiver (Kenwood), \$550; also MB40A Swan Transceiver, solid state, ideal mobile/portable/home station, for 40m, \$275. Ph. (02) 709 7242.

Commercial Rx: RX-180 Amateur band double conversion superhet, covers 90, 40, 20, 15 and all of 10m, complete with matching speakers, \$180. VK2ZIO, QTHR. Ph. (02) 872 1334.

FT820, listed xtal for 50 to 54 MHz operation, with 4 el. yagi, coax, etc., \$350; near complete collection of AR 1949 to date, \$40. VK5GU, Ph. (08) 223 2900 A.H.

Hallicrafters SX28, 550 kHz, 84 MHz Rx, incl. full handbook, \$35, O.N.O. Allen Crewther VK3SM, QTHR. Ph. (03) 385 4406 A.H., (03) 385 5794 Bus.

Telefunken Model 150, good working order, plus spare paper, \$70; QTH 13 2m 12.5 cm. ch. conversion, with atals., \$350. Dick Phillips crow, \$10. VK3SU, QTHR. Ph. (059) 44 8552.

Yaesu FTDX 401 Tscr, last model with CW filter and AM, as new cond., \$500. VK4IJ, QTHR. Ph. (07) 356 2610.

Yaesu FRG7 Communic. Rx, mint cond., \$260. Ph. Bill VK3DVW (059) 75 4067 A.H.

Yaesu FL2100 Linear Amplifier, unmarked cond., \$460. VR-HAGL, QTHR. Ph. (071) 41 2315.

**Unmodified FT200 with full 10m coverage, 240V AC power supply, and DC-DC power supply for FT200, also full set valves, \$520. ONO the lot. Trevor Bartlett VK5NTB, 143 Murray St., Northcote 3055.**

**ICOM IC-22A 2m HF Transceiver, repeater 2 (also reverse), 3, 4, 5, 6, 7, 8, Simplex 37, 40, 50, 53, with original packing and cradle, B2-12 final in very good cond., \$175; KRACO 2340 23 ch. AM/SSB, suitable for conversion to 10m, \$95. Lew VK1ZLW, Ph. (02) 47 3661 A.H., (062) 49 2695 Bus.**

**Astatic Mic., Model 10DA, the dynamic which succeeded the D104, made especially for SSB, complete with stand, new, in original carton (surplus). Roth Jones VK3BGG, 23 Gaudion Rd., Doncaster East, Vic. 3109.**

**Kenwood Communic. Rx GR-565, 0.1-30 MHz, incl. amateur bandspread, all solid state, 17W/340V, good cond., \$220. VK8Z/NDL Ph. Alice Springs 52 2359 (no STD), or write Box 1786.**

**Urgent — FT101E Tett., modified for Novice use, 12 month old, perfect cond., \$680. OHO; Yaesu FRG7, perfect cond., very little use, \$240. OHO; HC 500A frequency multiplier, 6-30 MHz, 8 months old, \$85.**

**Hansen power meter, 100W max, coax switch — 3 outlet, plenty of coax, approx 500m, illuminated copper wire for 80 dipole, \$35. Ph. (03) 388 4653. A.H. or (03) 314 0344, Ext. 258. Bus. Ask for Alan VK3NGD.**

**Kenwood TS-920S, incl. DC-DC Inverter, service manual, \$850. Hidaka V8-33 triband 3 el. yagi, 14 ft boom, \$200. incl. balun; ext. speaker PS-820, aux. TS-8205, \$80. Shure 444 500 imp. mic., \$40; Emelotter rotator 103LBX, 150 kg vertical load, \$160. VK5NPM, 8 Macintosh St., Mt. Gambier, Ph. (087) 85 2407.**

**Tech Model T-16 GDO, as new, \$50.00. RTTY plug-in boards for 576 demod., set of 8, \$25.40. UT-4 regen. rptr. set of 4, \$31.00. Monitor scope, set 2, \$6.80. AX-1 FSK mod. auto CW ident., auto freq. control, each \$3.30. VK3ZY, QTHR. Ph. (03) 277 4748, after 8.00 p.m.**

**Kenwood TS-128W, mobile HF transceiver, with MC-355 noise cancelling microphone, \$600. Phil VK2VII, Ph. (044) 24772 after 1700h EST.**

**10m conversion of Gemtronics GTX-3325 CB Transceiver. Covers 28.30-29.58, AM and SSB 25W PEP, fine tune operates on both Tx and Rx, mic. etc., had little use, aux. noise. \$120. ONO. Jim VK5JL, Ph. (08) 265 8054.**

**FRG7 Communications Rx with narrow 850 filter, min. condition, \$280. EA, Jan.-Feb. 1976 3.5 MHz Tx with 4 states, \$55. John Thurson VK2VFO, Corrimal, NSW. Ph. (042) 83 3509.**

**KW2000E Tett., 160-10m, like new, AC power supply, \$880. OHO. Yaesu YD844 disk mic., \$40. Dick Smith transverter 11 to 80, like new, \$60. CRO, \$100. ATU, \$10. SMT 80m, two of \$15 ea. Ph. (062) 75 2421, after 18.30h.**

**Yasse Mobile Antenna, complete rod-side set. RSL-3.5, RSL-7, RSL-14, RSL-21, RSL-28, plus RSE-M-2 (element and brace), brand new in box, \$100. VK2AVY, Ph. (02) 322 2752.**

**Communications Rx Drake SSR-1, built to 30 MHz, solid state, battery and 240V AC, built in speaker and antenna, with handbook, \$200. OHO. VK2NYY, Ph. (02) 88 2507.**

**FTDX500, in mint cond., with all features as the FTDX401, \$450. Galaxy SWR/watt meter, 0-600W and 0-4000W, \$75. Both together for a cheap price of \$500. VK2RM, QTHR. Ph. (047) 58 6569.**

**Complete RTTY station — Model 19 page printer, \$70; Model 14 tape distributor, \$20; Model 14 typing repeater, \$20; Motor and loop supplies, \$40; EA Terminal, \$50; Lot \$170. All in perfect working order. Ham "M" rotator, \$100. VK2BLK, Ph. (057) 64 1238.**

**Icom IC-211, as new, complete in original packaging \$600. OHO. Bob Anderson VK2ZXR, Ph. (02) 869 2685 or (02) 218 4846.**

**Kyukotsu, in good condition with 10 kHz scanner added, \$200. TR7800, 2 months old, still in original carton, \$365. Williton 14025M trans. held, good condition, Repl. 4, 8; Sharp 40, 50, 51 & 146.520, light duty rotator with 100m of cable to suit, used, \$45. Richard Cowles VK2ANB (VK2ZBNB), QTHR. Ph. (02) 693 8403.**

**FT101, very good condition, \$550; FT101, new, \$120; IC202E, new, \$160; IC820, new near, \$390; THD8XX with Ham B rotator, complete, \$360. Peter VK3JBE, QTHR. Ph. (060) 24 5614.**

**Linear Yaesu FL2100E, perfect, used only few times. Lee Wilms VK3AB, QTHR. Ph. (03) 20 1754.**

**Kenwood TS-520, 240V AC, 12V DC, power supply, O Willter, remote VFO, new 12V7V driver, and new pair 6146s in final amplifier; all in excellent condition. For sale complete to first genuine offer. (Sydney area). Ph. (02) 487 1273.**

**Drake ST-111 Comer, Rx, 5-30 MHz, Wedge loop oct. bat and AC operated, as new, in excellent cond., handbook and cct., \$230. Ph. (004) 25 3337.**

**ACI Marine Tett., 12-14V DC, solid state, broadband, 20W SSB/CW, modified to 80/40m VFO control, 4 x 10 positions available, NB, RIT, meter, 200 x 100 mm x 300 mm, \$195 OHO. VK3UJ, QTHR. Ph. (074) 874 5632.**

**Deceased Estate — Kenwood TR2700G 2m Tett., min. cond. w/manual, \$200; Trm 2m external VFO for above, \$100; 13.8V PS w/meter for above, \$30; Yaesu LF filter FF30DX, \$10; Hansen dual SWR meter, \$15; Vibroplex key, \$15; MCMS H/L Z Kenwood disc mic., new, \$40; 20 MHz to 3.5 MHz ATU, \$30; 240V isolation transformer, \$10; 24 hour LED digital clock, \$20. VK2BEE, QTHR. Ph. (02) 476 5096.**

**Deceased Estate — Yaesu mic., 500 ohms PTT with plug, \$10; Plantronics boom mic. & ear phone MS50, 3000 ohms, \$40; B & W coax switch, \$10; Dow Key with 6EH6 and instructions, \$8; Ant. noise bridge, Mod. TE7-81, \$20; MD722 misc., \$10; Rota meter, \$5. Plus numerous tubes, coax, etc., please send for list to VK2DA, QTHR. Ph. (02) 94 1039.**

#### WANTED

**Large Reflex Horn Loudspeakers for PA work, also 16 or 20W 500 or 800 ohm drivers in good working order. VK3UJ, QTHR. Ph. (060) 65 3213.**

**BB-601 Matching Speaker for Heathkit HW-101 Transceiver, also SB-654 readout in any cond., and any useful information of mods. for HW-101, RIT, etc. VK5NCO, Ph. (08) 295 4072.**

**Urgency — 2 x 813 Value Sockets, good price paid. Ext. RYK2BET, QTHR. Ph. (02) 476 2935.**

**Drake T-4XC Tx and AC-4 power supply. R. Lyon VK6GLK, QTHR. Ph. (09) 457 2202 AH, or (09) 277 2122 ext. 214, bus.**

**Remote VFO for Yaesu FT101E, also extension aprx. Osker Block and Yaesu serial tuner, instruction book for FTDX400. Ken Cassidy VK4QZ, QTHR. 14 Alice St., Townsville, Qld. 4814.**

#### EXCHANGE

**Swap FT101E AC/DC, near new and in mint cond., for linear amplifier, i.e. Dentron MLA2500, Drake LB4 or similar, cash adjustment either way if necessary. Ian Foster VK5ST, Ph. (051) 56 8311.**

**WSMXY Slow Scan TV Monitor, complete with circuit and alignment notes, wish to exchange for a solid state, 2m FM mobile transceiver. Steve VK3ZY, QTHR. Ph. (03) 277 4748 after 6 p.m.**

#### TRADE HAMADS

**QSL Cards, Log Books, Contest Sheets — send 20c stamp for samples and prices to Linda Luther VK4VY, PO Box 498, Nambour, Qld. 4560.**

**Are you on frequency? Be on frequency with DS1. Full range of top quality counters up to 1300 MHz. 0.1 parts per million accuracy. Quik-Ku 50 Hz, 550 MHz counter kits, 95 per cent assembled, 100 per cent tested, 12 month part warranty, AC or DC operation, 8 digits, 1/2 inch LED, accuracy 1 part per million. Special introductory price \$135, incl. postage. Write for further info or check ads in Australian QST, Ham Radio, etc. Australian distributors ATN Antennas, Box 80, Birchip, Vic. 3483.**

## CONTESTS

**Wally Watkins VK2ZNNW/MCU  
Box 1085, Orange 2800**

**June: 16/17 ALL ASIAN PHONE CONTEST  
23/24 ARRL FIELD DAY**

**July: 14/15 IARU RADIOSPORT CHAMPIONSHIPS**

**August: 11/12 REMEMBRANCE DAY CONTEST**

## SILENT KEYS

**It is with deep regret that we record the passing of —**

**Mr. W. B. MUDIE  
Mr. G. M. FOWLES  
Mr. K. W. M. MAGEE  
(VK3KM) YJ8KWH**

## OBITUARY

**WELL KNOWN QOT BECOMES SILENT KEY**

**Members of VK/CNC Chapter 66 wish to record their regret at the passing of Cliff Evans, K6KX, founder and creator of IARS (International AR Society), CHC (Certificate Hunters' Club), FHC (Flying Hams' Club), etc., etc.**

**Cliff died at Bonita, California, on the 30th March, 1979. He was first licensed in 1914 and was an active ham for 65 years. One of his many outstanding accomplishments was the creation of Hamdon's largest ever Awards Programme and its first Directory, produced in book form, called the "D". He was also an outspoken critic of any activity in AR that he saw as unworthy of the service; this brought him into conflict with many people and groups.**

**The Awards Programme in particular and AR in general will never be quite the same again without him.**

**VK4BS CHC 883**

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**TOWNSVILLE RADIO CLUB**

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**TRIO-KENWOOD**

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**VICOM**

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**WIA NSW DIVISION**

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**WILLIAM WILLIS & CO.**

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# Quality ham gear from VICOM

## ANTENNA COUPLERS

CL570	DAIWA 1.9 - 26 MHz 500w pec	139.00	TS1805	Deluxe HF transceiver
CNW217	DAIWA inc. SWR/PWR, direct reading, 200w	199.00	TS120V	30W HF transceiver
CNW417	DAIWA inc. SWR/PWR, direct reading, 500w	245.00	TS100W	100W HF transceiver
MFJ901	Matches everything 1.8-30 MHz	103.00	TS5205	HF transceiver
MFJ15010	Random wire tuner 160-10m	75.00	TS8205	HF transceiver
MFJ941	160-10m, 300w, incl. SWR/PWR	133.00	AT200	Antenna tuner
			SM220	Station monitor
			HR-0002	Ham Rack furniture kit
			HC-2	24 hour ham clock

## ANTENNA ROTATORS

DR7500S	Heavy duty with controller & mast clamp	289.00
DR7500S	Medium duty with controller & mast clamp	189.00
6 CORE	Cable for above (200m rolls)	1.00/m

## COAXIAL SWITCHES (DAIWA)

CS201	2 position, high per, up to 500 MHz	26.00
CS401	4 position, high per, up to 500 MHz	39.00

## COAXIAL CHANGE OVER RELAYS (DAIWA)

CX-2L	1.6 thru 170 MHz, 100w pep max	48.00
CX-2H	1.6 thru 450 MHz, 200w pep max	89.00

## LOW PASS FILTERS (DAIWA)

FD30M	32 MHz Fc, 1 Kw, 3 stages, quality	39.00
FD30LS	32 MHz Fc, 200w, 3 stages, quality	20.00

## RINGO ANTENNAS (2 metres)

ARK-2	Ringo ranger Gain omni directional	52.00
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## NOISE BRIDGE

PALOMAR	Rx noise bridge to 100 MHz	93.00
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## SCALAR

M22T	1/4 wave 2m mobile whip, top only	7.00
M25T	1/4 wave 2m mobile whip, top only	14.00
BASE B/L	Belling Lee bases for above	4.00

## BALUNS

BL50A	PAK 50 ohm 4 Kw model for dipoles	32.00
BL70A	PAK 70 ohm 4 Kw model for dipoles	32.00
AS-BL	ASAHI 50 ohm for beams	38.00

## TUBES

BJS6C	Finals for Yaesu transceivers	12.50
EKD6B	Finals for Yaesu linear	13.00
B146B	Finals for Kenwood/Uniden	13.50
572B	For Yaesu linear	61.00
12BY7A	Driver	3.50

## CW FILTERS

FT101E	Yaesu YG395C Kenwood	49.00
TS520S		57.00
TS802	YGB8C Kenwood	57.00

## MORSE KEYS

HK702	Deluxe key with marble base,	41.00
HK708	Economy key	23.00
HK706	Operator's key	25.00
HK701	Manipulator (slide-swiper)	45.00
EK103Z	Electronic keyer	336.00
PALOMAR	IC keyer	149.00

## SWR/PWR METERS

VC-2	Twin meters, 3-150 MHz with cal chart	35.00
SWR200	Oskerblock 3-200 MHz, 2/20/200/2000w	85.00
SWR210A	Davis 1.6 thru 150 MHz 20/20w, direct reading	98.00
SWR410A	Davis 1-40-500 MHz, direct reading	129.00

## KENWOOD PRICE LIST

TS1805	Deluxe HF transceiver	530.00
TS120V	30W HF transceiver	570.00
TS100W	100W HF transceiver	533.00
TS5205	HF transceiver	899.00
TS8205	HF transceiver	899.00
AT200	Antenna tuner	195.00
SM220	Station monitor	340.00
HR-0002	Ham Rack furniture kit	60.00
HC-2	24 hour ham clock	36.00

LOOK!



## ICOM IC-402 432 MHz SSB & CW portable

Frequency range 430-435.2 MHz in any 200 KHz bands • Power output 3 watts PEP SSB • CW, USB, LSB • Receiver sensitivity 0.5 UV at 10 dB SINAD. Provisions for external antenna & power sources • BC-20 nicad battery pak & charger optional

**ICOM**

## ICOM IC-202S 2m SSB portable

The IC-202 features: • Frequency coverage 144-146 MHz • Modulation: A3J and A1 • RF output power: A3J 3 watts (PEP), A1 3 watts • Sensitivity: 0.5 microvolts at (S+N)/N 10 dB or better • Includes a true IF noise blanker • Requires "C" batteries or external 12 volt source.



## ICOM IC-211 2m transceiver

• 144 to 148 MHz coverage • Modes: SSB, CW, FM • LSI synthesizer PLL • 4-digit LED readout • Pulse-type noise blanker • VOX w/adjustable gain • SWR bridge • CW monitor • Automatic power control • AC/DC power supplies • Antenna impedance: 50 ohms unbalanced • TX output: 10W PEP

## LEADER

NEW

## Tr Dip Meter



\$89

★ 16 Channels (4 crystals supplied)

★ AC/DC Operation

★ Scan or manual

★ Price \$199

## synthesised handheld

AR240 800 ch synthesised dial-up, 1.5w output

\$389

AMATEUR RADIO DIVISION

**vicom**

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Adelaide 43 7981

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Canberra 31 6685

Melbourne 836 8635

Perth 321 3047

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